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FEBRUARY, 1883.

NOVELTY is gratifying. It satisfies a human desire. SOLOMON said "there is no new thing under the sun," but the scope of this saying is too elevated to allow of application to active life. The healthy mind in the healthy body perceives something new even in the most common and recurring experiences of each day. Novelty is the life of the garden; here we see an endless change from the moment vegetation commences in spring until the last flower of autumn has faded, and the last leaf dropped. But one of the greatest pleasures in gardening is raising plants we have never cultivated before, and observing their habits. To gratify this taste all parts of the earth are searched to gather strange plants and seeds; to this end, also, some cultivators are continually employed in originating new varieties of flowers, fruits, vegetables and ornamental plants and trees. In looking forward at this time to the commencement of active operations in the out-door garden, it will be both natural and proper to consider what new plants we shall attempt to cultivate; but, while with propriety we may "prove all things," let us not neglect to "hold fast that which is good." We have proved in our own gardens that a certain variety of Pea, Bean, Sweet Corn, Tomato, or other vegetable is a valuable one, do not let us take some

variety strange to us, at the neglect of the proved variety, no matter how high the recommendation. Let us try cautiously new varieties, or those unknown to us personally, and in small quantities. We may want a few new varieties of flowers, but we cannot leave the old ones, or those proved to be valuable and beautiful; these must be kept, while a few new kinds are tried. One of the greatest novelties that most plant growers could experience would be to see the old familiar plants well grown. Not one in a hundred of us know the capacities of our commonest flowering annuals, or have ever produced them in their highest perfection. Our ambition, as cultivators, should be to raise our plants to their full development. To do this we must study the peculiarities of each kind and its requirements, and by drainage, manuring and cultivation put the soil in the best condition. Now, as to novelties in horticulture, in the sense usually understood, that of new productions, or plants newly introduced into trade, it is well to keep posted on them; but most people can derive information of this character better from others than by experimenting themselves. Those most advanced, and having greatest experience in the cultivation of plants of particular classes, will be most apt to lead in proving new things, and they are the most competent

judges of these productions, and to them we have a right to look for candid and correct opinions. Tests of new plants, especially new fruits, need to be made in every part of the country, since varieties that are valuable in one locality are nearly worthless in many others. The desire for novelties is pandered to by many unprincipled traveling salesmen, and in regard to them we can only say, treat them as the ancient Jew did the Samaritan—have no dealings with them. Purchase novelties only of houses of established reputation.

GRAPES FOR THE GARDEN.

A few months since the attention of our readers was called to the particular feature of the handsome white Grape, of which a colored plate is now presented. The more that is known of the Prentiss the more it is esteemed. That it will prove to be an excellent and valuable variety, when it has been more generally tried, we have no doubt. The particular bunch here represented is above the average size, as also the berries. Otherwise the general appearance is correct, although we think the bunches are more compact than the plate shows. This variety is superior in quality to Pocklington, or Niagara, and apparently has all the other good qualities that adapt it to the wants of the public for garden culture, over a wide range of territory. In making up a dish of Grapes it is desirable for appearance to have a variety of colors. A good white Grape has long been wanted, although of varieties of black and red we have numerous specimens. As an amateur we would have the Prentiss both for its beauty and goodness, nor lack the Pocklington for its beauty. In planting vines for the family garden one cannot go far astray, nor fail to have an agreeable variety of fruit by planting Moore's Early, Concord and Wilder for black; Brighton, Delaware and Salem for red, and Prentiss and Pocklington for white. Of course, there are other superior varieties not mentioned, but all of these are now well tested. If you have no vines, and no knowledge of them, and your neighbor has one that suits you, it may be well to procure one like it; it is a safe guide, though you may not thereby get the best.

A ROYAL WINTERGARDEN.

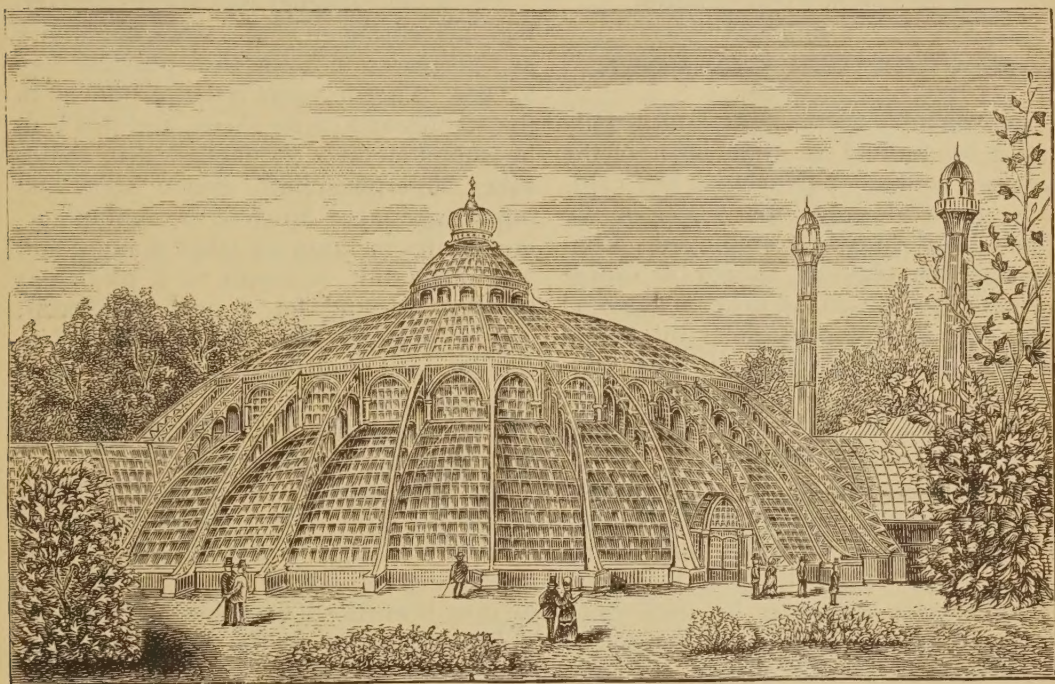
For a long time the people of Belgium have been noted as careful gardeners and lovers of horticulture. They pride themselves in their progress of this peaceful and useful art. The grand nurseries of VAN HOUTTE, at Ghent, have long enjoyed the reputation of having a far greater collection of plants than any similar commercial establishment in the world. It is not strange to learn, therefore, that as a fitting out-growth of this national taste, the King has erected a greenhouse, or conservatory, or, as they call it, a Wintergarden, of magnificent size, harmonious proportions, and beautiful in all respects; it is considered the grandest architectural work of the kind in the world. The illustration here shown of this elegant structure faithfully exhibits the exterior effect. An immense glass cupola, supported by thirty-six beautiful pillars of granite in Greek style, forms the center building, which is circular in form, and about 222 feet (60 metres) in diameter, and 111 feet (30 metres) high in the center. Above all is a lantern top surmounted by a royal crown. At the east and the west sides are two wings, each nearly fifty feet (15 metres) in width. The whole surface of glass covers about 61,000 square feet, (5,000 square metres.) Each of the iron arches rests on two granite blocks, six and a half feet (2 metres) high, and perfectly solid. The heating of this immense structure is performed by a number of boilers, and 16,500 feet (5,000 metres) of iron pipe, through which flows hot water. The chimneys, which are about 122 feet (34 metres) high, are built in oriental style in the shape of minarets.

It would be impossible to give any commensurate idea of the stock of plants that is here cultivated solely for their beauty. Among them there is a large collection of Palms, consisting mostly of large, strong and perfect specimens; one of these that particularly deserves mention is a *Sabal umbraculifera*, nearly forty-three feet (13 metres) high, having a crown twenty-six feet in diameter, of dark green, fan-shaped leaves. This beautiful specimen, which has been growing for years on a farm near Brussels, when brought to the Wintergarden required twenty-two horses for its removal.

Another noticeable Palm is a specimen of *Latania borbonica*, sixty-four feet ($19\frac{1}{2}$ metres) high. Fine groups of Tree Ferns, containing specimens of *Dicksonia antarctica*, *Cyathæa dealbata*, *Cyathæa medullaris*, *Alsophila australis*, and others, elicit much admiration by their grandeur and beauty. Much attention has been given to the grouping and arrangement of all the plants and the disposition of the walks through them, so as to produce the finest effects. Alto-

but none the less true is, like people, like priest, and this last is in agreement with another saying of self-evident truthfulness, that the "child is father to the man."

The people of Belgium, from the first, were, by necessity, compelled to cultivate their lands with the greatest care in order to obtain sufficient to sustain life, and centuries of industry of this particular kind has bred them to a love of it that is now possessed by all, from peasant to king.



ROYAL WINTERGARDEN AT BRUSSELS, BELGIUM. FROM A PHOTOGRAPH.

gether it forms one of the finest horticultural attractions of Europe.

There is something so singularly appropriate in this royal garden structure at Brussels that it seems almost to have risen up into its position by natural growth. The agriculture of Belgium is noted as the finest in the world, and the subdivision of lands is carried to the extent of mere gardens, so that nearly all crops are produced by the highest culture. When it is considered, and such is the truth, that the soil of Belgium was naturally unproductive, and has been brought to its present state of fertility by generations of toil and care, no fitter monument of the industry and pride of its people could be erected by its sovereign. It may be well here to notice, also, the unity in taste of royalty and people. It is a trite saying, "like priest, like people,"

There is much complaint in this country of official corruption, of dishonesty of those in places of trust, of betrayal of constituents by representatives, and of a general disregard of honor. To whatever extent this may be true it is certainly but an indication of the estimate of honor and integrity by the mass of the people. We are unquestionably fairly represented, and this thought, though humiliating, should not be repressed. Manhood, honor and self-respect, incapable of estimation by any measure of material wealth, are some of the finest fruits of human culture, and these will not come to us as a people merely by imitation of those in high position either in state or church, on the contrary, our representatives will manifest the sentiments with which the people are imbued. If the abuse of confidence shall induce more

correct ideas of the sacredness of trusts, if our ideal of the possible grandeur of manhood shall thereby be elevated, our trials, our mortifications and our losses will ennoble and improve us. If our race is yet to stand on a higher moral plane, so surely must the mass of the people occupy the higher position; to build a grander pyramid we must lay a broader base; to raise a better crop we must more faithfully till the soil. Our civil service reform must begin with each voter, and be taught to his children.

THE VEGETABLE GARDEN.

The vegetable garden for a large family should be formed so that most of the work can be done with a horse and cultivator, or, if desired, for some of the crops a hand cultivator employed. Consequently the planting should be almost entirely in rows; and in order to have as little waste land as possible at the end of the rows, where the turning is done, gardens of only half an acre to an acre in extent should be of an oblong form, allowing long rows to be made.

The family garden for convenience must be situated at no great distance from the kitchen, therefore one cannot have a wide range of choice for a site, nor will there ordinarily be very much difference in the character of the soil of the different parts. The market gardener who cultivates a number of acres can usually adapt his various crops to the particular kinds of soil most suitable for them, and this is a matter of considerable and often serious importance, where large areas are cultivated, but in the limited space of a family garden is almost insignificant, if the soil is properly managed and tilled. For successful results in vegetable growing there are ordinarily five points of primary and essential importance demanding attention; these are drainage, manuring, preparation of soil, character of seed, and tillage.

The importance of drainage is not always understood, or perceived, and we know that we shall do some of our readers a valuable service by calling attention to this subject. One who has never practised underdraining cannot fully understand its value, nor be aware of the necessity for this work that exists in many cultivated lands. Rolling lands with

gravelly subsoil may usually be depended upon for good crops without artificial drainage, but if the subsoil is clay drainage is nearly always required. There is but little flat-lying ground but what is benefited by underdraining, and what may seem strange to some is, that hill-sides as frequently as level ground require drainage; this is particularly true of foot-hills where the water comes to the surface that has filtered through from some distance above.

The good gardener will always be vigilant in securing an ample stock of manure and preparing it in the best possible way for use. First in value is that produced in the stables and cattle sheds, and this is to be supplemented as needed with wood-ashes, superphosphate, guano, soot, and other materials. Much of the skill of gardening lies in knowing what manure and how much of it to supply to a particular piece of ground for a particular crop; and in each case this must of necessity be the personal knowledge and judgment of the gardener; only in a general sense can it be said that some special manures are adapted to special crops.

The preparation of soil, such as deep tillage for most crops, the avoidance of stirring it when it is wet and heavy, and cultivating and raking it until it is fine and mellow, is worthy of most careful attention.

The character of the seed employed for the garden is so important that we usually see much interest and often no little anxiety manifested in regard to it, but, strangely enough, often the lack of judgment in procuring a supply is as great as the anxiety. It is doubtful if seed of any kind is better with age, notwithstanding we are sometimes gravely informed so in regard to certain kinds; it is true some seeds will retain their vitality much longer than others, and some kinds may produce satisfactory crops even when several years old, but we need have no fear of the freshest seed having too much vigor, or of germinating too promptly. To postpone the purchase of seeds to the last moment when they are wanted, and then to hasten for them to the nearest shop where they may be procured is not a safe proceeding. If purchased some time ahead, they may be tested and their quality learned. It is not wise to save a few cents, or some small sum, by purchasing of an irresponsible party when you

can procure the seeds from those in whom you properly have confidence, for the reason that in previous dealings they have proved themselves reliable, and who have to sustain a reputation gained by long and honorable courses.

The tillage of crops makes efficient all previous operations upon them, and these are lost, partially or wholly, or saved, according as that is well or badly performed. Proper cultivation is not for the purpose of destroying weeds, and only a poor cultivator will allow weeds in a growing crop. By stirring the soil we admit air to it, warming it, and favoring the chemical changes therein that are necessary for the crop's welfare, and by this operation the passage of water both downwards and upwards is facilitated. Stirring the soil, either with the hoe or the cultivator, is most beneficial in dry weather; in a wet time it should be deferred.

We have now to notice five other points that in a sense are of secondary importance, but which are operations so essential to good gardening as to endanger the crop to the extent of their mis-performance. These are, the supply of water, the kind of seed, the quantity of seed, the time of sowing or planting, and the manner of planting.

There are few localities where one can trust wholly to the clouds for a direct supply of water for the garden. This is true in relation to some crops more than to others, and to the early stages of growth, rather than to the later, and we are obliged to supplement the rain fall with the use of the watering-pot, the garden hose, or by a regular system of artificial irrigation. Let the provision of water, then, be ample by whatever means it can be best accomplished.

The kind or variety of seed employed provided it is an ordinarily good one, is often of less importance than the manner or thoroughness of cultivating. Still, to have a regular supply of vegetables for the table, we need to select varieties with discrimination in regard to their time of arriving at perfection, and for their highest value we must have regard to their quality. On these points we can become well informed only by experience; next to this we must trust those we regard as safe advisers.

It is best to seed liberally, for it is an

easy matter to destroy the plants not needed, but if the rows are not full of plants for lack of seed we have all the labor to perform for a part of a crop.

The time of sowing or planting for the different crops of the garden is a subject of which it is necessary always to be mindful. Some, like the Onion, require to be put in early in order that they may have the benefit of the cool and moist weather of spring to make their best growth; some, like Lettuce and Radish, are most prized very early in the spring; and others require the seed sown early in order to obtain plants that may be set in the open ground at the first opportunity after the frosts have passed, such as Tomatoes, Early Cabbage and Cauliflower, and many others; then, again, a succession has to be kept up, and repeated sowings made of some kinds of seeds. To bring about these different results we must give attention to hot-beds, cold-frames, propagating pits, hand-glasses, shelters, and other suitable appliances, and the good gardener in the more leisure seasons of the year will attend to the repair of all these articles, and have them ready for use when needed.

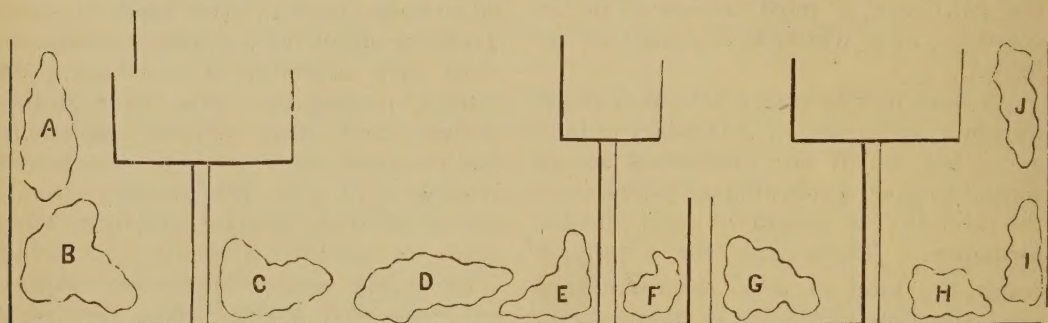
Lastly, the manner of planting of different crops may greatly affect the result. A plant, like the Onion, that shades but little ground, and whose roots do not extend far, and which requires the soil to be rich and well prepared, we cannot afford to plant at wide distances, merely for ease of cultivating. If a crop like this covers a large area we must procure tools that will work in narrow rows, for a horse if properly trained will walk in a width of twenty inches; but for small sized areas we can depend upon hand cultivators which are now made in great perfection, and will allow us to plant as close as fifteen inches, or even closer. The depth that seeds of different kinds are sown is important; small seeds and those that germinate feebly needing to be placed at a shallower depth than those more vigorous; the character of the soil and the season of the year should also be considered in this connection. If the soil is inclined to be heavy and there is danger of the surface baking, or forming a crust, some fine seeds may need to be covered with sand.

This subject might profitably be treated at greater length.

SHRUBS AND PERENNIALS.

The general disuse of fences about many suburban places, although regarded as a decided improvement over the old method, has made felt an unpleasant exposure to the street. Where the planting is good, and trees and shrubs to some extent conceal the grounds, this disagreeable sensation when walking or sitting on the lawn is not experienced; but on most grounds this is not the case, and the eyes of the public can search the whole surface. By the following sketch is shown a plat of ground, the property of three owners, with the positions of the residences marked with straight walks running to them, also a drive way to one. The outer lines represent the lines of the streets, the plat lying between two streets,

around with herbaceous perennials, so as to have something in bloom continuously from early spring to late autumn. It is probable that many of the herbaceous plants that now occupy these margins will not thrive after a few years and when the shrubs are fully grown, but then they will not be so much needed. Some of them, however, will find the place so congenial that they will persist in staying, and will multiply there. It will be better on all accounts to keep the margin of each bed well defined by a clean cut turf, and not to allow the grass gradually to encroach upon it until it has driven the herbaceous plants out. Tulips, Hyacinths, Crocuses, Snow-drops, Narcissus, and some other bulbous plants can be scattered about the margins, and will show their colors early in the spring time.



GROUPS OF SHRUBS SCREENING A LAWN FROM THE STREET.

and fronting a handsome and populous avenue. Flowering shrubs are planted in masses to screen the grounds, while they are not so tall as to cut off the view from the windows, and openings between the groups admit of views from the streets. Group A consists of Syringas and Lilacs of different varieties, the tallest occupying the most central positions; Group B has central plants of dwarf Pine and Arbor Vitæ, and the rest are Mahonias, Japan Quince and Weigelas; group C consists of different varieties of Spiræas; group D has Snowballs and Viburnums for central objects, with lower growing shrubs and those with variegated foliage about the margins; E is a mass of Deutzias; F consists entirely of low-growing evergreens; G has Weigelas and Deutzias; H has Lilacs and Syringas central, with Japan Quince, Mahonias and Hydrangea paniculata grandiflora on the margin; I is another group of evergreens, somewhat differing from F; J is composed of Lilacs and Syringas. The margins of all these beds are planted

Each of these can be planted so as to occupy a little patch, forming a mass of itself, showing a little breadth of color, rather than being disposed of singly, thus producing a much better effect. It is needless to advise in detail what plants to use for this purpose, as the variety to select from is very great, and there is ample opportunity to exercise individual fancy and taste. However, there are two plants, not herbaceous, but shrubby, that are particularly worthy of mention. One of these is the favorite and well known Periwinkle, or Vinca minor, which running over the ground, clothes it with perpetual verdure, and produces its handsome blue flowers very early in spring. Its natural home is under trees and shrubs, and it will thrive in such situations without assistance or cultivation of any kind. The other is the little Daphne Cneorum, another under-shrub with evergreen foliage, producing beautiful and fragrant flowers; it is well adapted to such a border, and will do better there than in the open ground.



CALIFORNIA RAISINS.

Raisin making is speedily becoming one of the great industries of California. The vineyards are situated in the central and southern portions of the State, where climate and soil are most favorable. The Muscat of Alexandria, a large, meaty, white Grape, is the variety principally grown for this purpose. Dark Grapes do not make raisins, but they are frequently dried and sold at a cheaper rate as "dried grapes." The vines are not grown on a trellis, but are set as standards. In December or January, according to the season, they are pruned back to two or three eyes, and present a very prosaic appearance, resembling a field of gnarled old stumps stuck in at regular intervals, rather than the charming tangle of tendril and leaf that errant fancy pictures on mention of a vineyard.

But wait until early spring, when the tender young shoots begin to throw a veil of the loveliest green over the rugged trunk; or, later, when the air is redolent with the breath of the grape blossoms, or later still, when one revels in the mammoth clusters, half hidden by the broad leaves, and who can deny that there is more poetry than prose about a vineyard? No one, unless it is the owner of the vineyard. He may tell you, with lengthened visage, of the toil required to keep it in order, of the irrigating and cultivating; but be very sure that he is well paid for his trouble. Else why does he not root out his vineyard and plant trees, and why are millions of new vines set every year?

You may plant your cuttings with the greatest pains-taking, but your vineyard will not prove a paying investment unless it is properly cared for. It must be thoroughly cultivated and kept free from weeds. It should be irrigated in winter,

and in summer also, if it is in the interior on high, dry land. Grapes intended for raisins should be perfectly ripe. If picked green they do not dry well. They are usually ready for picking about the middle of September, and dry in two or three weeks, according to the weather. When about half dry the raisins are turned. Formerly all the raisins were dried upon the ground; but this implies turning the clusters by hand, a necessarily tedious process, and one likely to break the brittle stems. Now the leading vineyardists place the clusters on wooden trays, two by three feet, allowing about twenty pounds to a tray. When ready to turn, an empty tray is placed above the full one, and the two are reversed without the loss of time, and without injury to the stems or clusters.

The raisins do not need protection at night, except in case of heavy fog or rain. When they are thoroughly dry, the raisins are placed in large boxes, called sweat boxes. At first the stems are hard and brittle, and break at every attempt to place them in position, but after remaining in the sweat box a few days they come out damp and pliable, and the raisins are then ready for packing.

They are usually sorted according to size into first, second and third grades, and are packed in twenty pound boxes, in layers of five pounds. Each layer is packed and pressed separately in a form, or mold, and then slipped into the box.

In several localities in Southern California it is arranged that one party shall take the Grapes of the vineyardist, and dry and pack them, thus saving much care and oversight, and making raisins of a uniform quality, and of a higher standard than the average produced by individual Grape growers.—A. P. A., *San Gabriel, California.*

THE COTTON PLANT.

Your ILLUSTRATED MONTHLY MAGAZINE is both a very interesting and very valuable publication, and I am always

glad when each number arrives.

As you invite correspondence, and never having noticed that any of your readers have tried raising the Cotton Plant, I have thought the telling of my success might be interesting. I

send you a drawing of the plant. The plant is much dwarfed; it is only sixteen inches high. The seed came from South Carolina. Two years ago next March, I planted two of the seeds in a small flower pot in the house; they germinated in a few days,



COTTON PLANT.

and I kept the strongest plant, and when it was large enough I transplanted it into a six-inch pot in which was a mixture of sand and rich earth. As soon as the weather was warm enough I sunk the pot in a cold frame in the garden, keeping the sash on at night until it was safe to leave it off.

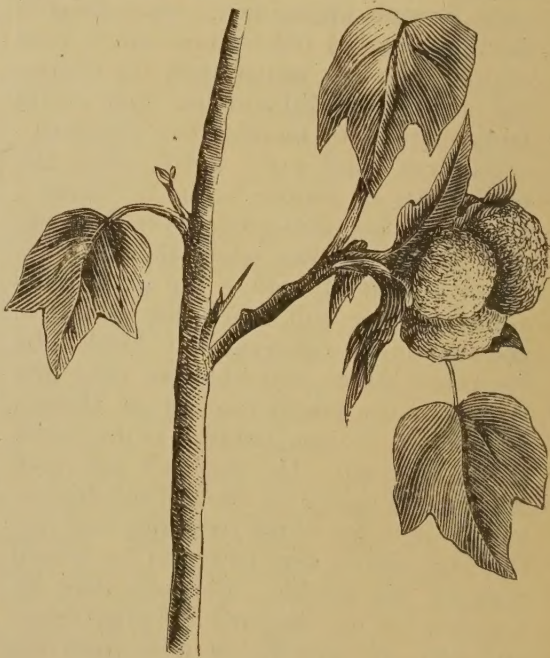
During the summer the plant had several straw colored flowers. I let the first one grow, kept picking off the rest, and soon the boll grew, and looked very much like a walnut with the shuck on. When the weather began to grow cool I removed the plant to the house. About the last of December the boll opened, and it was quite a curiosity all winter, as I let it remain on the plant.

During this summer, having transplanted it again in an eight-inch pot, I sunk the pot in the garden and let another boll grow, which is just now opening, as the picture will show. In the winter it is in a very warm temperature, about 75° to 80°. I tried to raise a plant

from one of my seeds; it sprouted, but it was not healthy, and soon died. I do not think my plant will live another year, although I believe the Cotton Plant does live three years on the Pitcairn Islands. It begins to show signs of drooping, and is attacked by a scale insect.—E. W. L., *Schenectady, N. Y.*

SWEET PEAS.

There is no annual flower more completely satisfactory for the farm garden than the Sweet Pea. Its prominent growth, its constant renewal of abundant bloom up to the time of severe frost, the variety and brightness and harmony of colors, the sweet perfume and the long, firm stem, so convenient for nosegay-making, give this fine old flower a first rank. It grows six or seven feet high, and is equally handsome in pyramid or cone form as a single clump, or in a row as a hedge or screen for which it is specially adapted. It requires support, like other tall Peas, and some of the stakes should reach to its full height. The seed germinates more slowly, and should be planted either in the fall or very early in the spring, and rather



COTTON PLANT—SHOWING THE RIPENED BOLL.

deep. The only other special care required is to use the flowers freely so that little or no seed may form to exhaust the plants, and to water copiously once a week, if drought occurs. Clean culture by hoeing or mulching is a requirement.—W.

AZALEA AS A WINDOW PLANT.

Not every flowering or decorative plant is suitable for the window garden of the living room, even with the best care; but as one that will gladden our hearts with many flowers, the Azalea deserves mention here. The Azalea, sold by florists in hundreds of different varieties, came originally from India and Japan, where it

water is very injurious, as it will rot the roots, but the earth toward the center of the pot should always be moist. Daily sprinkling of the leaves is also beneficial, unless the plant show flower buds. During the time of flowering the plant should be given the coolest place, as the flowers will keep three or four days longer in a low temperature. The flow-

ers are both single and double, and are from two to three inches in diameter, of a great variety of colors. The plant is covered with flowers from January until April. After flowering the seed pods will commence to form, and these should be cut off, and the plant prepared for transplanting by trimming. The transplanting must be done very carefully, and the plant removed from the old pot without disturbing the roots. If the soil at this time is too dry, it is best to water it thoroughly, so that the plant can be lifted from the pot with the ball of earth. One size larger pot is sufficient, and it should have some pieces of broken pots or charcoal for drainage in the bottom. Peat mixed with sand is the soil used for Azaleas. After transplanting, the plant should be kept in a very cool room, but with plenty of light and sunshine. The daily sprinkling of the leaves must be resumed. Those who would like to take cuttings should improve the



AZALEA—ETENDARD DE FLANDRE. TWO-THIRDS NATURAL SIZE.

grows wild. It was brought here nearly a century ago. The plants are raised mostly from cuttings, except new varieties, which come from hybridized seed. Young, strong plants can be obtained at low prices from all florists. In the sitting room the Azalea should have a southern exposure, with plenty of fresh air, and not be over-heated. Regular watering is one of the main conditions. It is not necessary to water every day, but never let the plants get entirely dry, especially when flowering. Too much

opportunity at the time of transplanting, and the cuttings, with a little care, can be easily rooted in sand under glass. During the summer months, or as soon as night frosts are over, the plant in the pot may be plunged in the open ground in an airy and sunny place. Water should be given the plant as needed, and on hot days this will be at least twice, morning and evening. A few weeks before removing the plant to the house, liquid manure may be supplied twice a week. If the soil is dry, watering should

be done before giving the liquid. Insects are sometimes very troublesome to the Azalea, especially during the summer, when plunged out. Neglect on the part of the cultivator has brought on often the loss of good strong plants. Red spider and thrips are the most destructive. Though very small, they can be seen with the naked eye, and are generally found on the under side of the leaves. Bathing the plant in warm water of about 150° will kill these insects. A very dilute solution of alcohol, or whale oil soap, will also prove destructive. A large paper bag put over the plant and filled with tobacco smoke is effective for thrips.

The following are some of the best named varieties :

Alba, white, one of the oldest, but still one of the best for early flowering.

Duke of Wellington, bright scarlet.

Flag of Truce, white, very large and double ; an excellent variety.

Souvenir de Prince Albert, without exception the best of the double varieties and distinct from all others. It has large flowers, with broad petals, white and rose, edges pure white.

The Azalea has always been considered a greenhouse plant, but with the treatment now described, during and after the flowering season, it will show for itself that it can be kept successfully in a living room. In many cases, with this treatment, strong and healthy plants have been the result.—C. M., *Albany, N. Y.*

CORPSE PLANT.

Somebody says in the article on "Parasitic Plants," in the issue of November, of last year, that *Monotropa uniflora*, or Corpse Plant, once poisoned a lady who was handling it, and chanced to get its juice on her chapped lips, and produced sores, and then adds, "There is another side to the story ; for some writer says that the expressed juice taken internally is good for" different diseases, naming them. Then, our writer continues, "When such opposite testimony is given in respect to its properties, it is difficult to decide which may be right." He, doubtless, overlooked the fact as long ago tested by certain poisons, that the lady's lips, being chapped, the poison had been absorbed by the excoriated parts, and had thus passed directly into the blood ; whereas, the same poison

might be harmlessly taken into the mouth, if there were no abrasion, or into the stomach, as a remedial agent, without ill effect. It is well known that wounds made by venomous serpents have been sucked by some heroic person present to remove the poison, without after harm. Most people are also aware that one school of physicians profess to give as an internal remedy, not only the acrid poison extracted from our stinging bees, but also the virus of a venomous South American viper. A lady invalid once told me with the utmost complacency that her physician said that the active principle of the pellets she was taking at short intervals was the last named venom. A belief in this seemed to excite her imagination, and through that possibly stimulated her nervous system. Be that as it may, it is well enough for us to know that though the sap of the Corpse Plant may be taken internally, it cannot be inoculated into the blood with impunity, even in small quantities.

By the way, somebody will have to cross swords with somebody yet, for trying to defame her beautiful "Golden Thread." Where is the presumptuous being who first called it Dodder ? bah ! And how can any one dare to speak of its "anomalous conduct ?" And why should any one want to explain its beautiful amber loveliness by trying to imagine a series of mishaps or accidents by which such a condition was evolved. "Green leaves !" what does it want of them ? What pattern of leaf would fitly ornament the polished stems ? Not one that ever grew. It remains as it was made. Its annual processes of growth contain a beautiful lesson for all mankind. He who runs may read. Through my interest in its curious development I first became acquainted with this MAGAZINE, and shall always be ready to throw the gauntlet when my Golden Thread is assailed.—MRS. M. B. B., *Spring Valley, Ohio.*

SCALE INSECT.

Your correspondents recommend kerosene for the scale bug. I have used it, but do not like it. I apply linseed oil, just wiping the stems with a bit of rag. It answered like a charm, leaving the branches clean and supple.—J. P., *Chestnut Hill, Philadelphia.*

THE FLOWER'S MISSION.

There was once a little flower,
Growing where weeds were tall,
And the blue sky bending over
It could see, and that was all.

The weeds put out their branches,
And shut the sun away;
But the brave little flower kept growing,
And spreading, day by day.

"I know I was meant for *something*,
Else I would not be *here*,"
It kept saying over and over,
To a briar, bending near.

"I think you must be mistaken,"
Was ever the briar's reply;

"Such a poor little thing as you are
Will live for a day, and die."

But the faith of the flower was steadfast,
As it turned its face to God,
Believing it had a mission
Above the earth's green sod.

In the long, sweet days of summer,
Its little buds burst wide,
And the air, with its spring-time fragrance,
Was sweet on every side.

Now the weeds, hedging in the flower,
Grew close to a sick girl's room;
And the breeze bore in thro' the window
A breath of the flower's perfume.

And, Oh!" cried the girl in gladness,
"I can smell the old home flow'rs;
Bring me one little blossom,
To cheer these lonely hours."

They sought through the garden vainly,
"No flowers are there," they said.

"There are," she cried, "I can smell them,"
And she would not be comforted.

Again they sought in the garden,
And, led by a wandering wind,
Deep in the weeds and briars,
They chanced the flower to find.

They brought one in, and laid it
In the sick girl's wasted hand,
And she kissed it over and over,
But they could not understand

What it was she said to the flower,
Of the old home, far away,
Or the words that were sweet with comfort,
That the blossom had to say.

Each morning they brought a blossom,
To brighten the sick girl's room,
And the heart of the humble flower
Was glad in the tall weed's gloom.

"I knew I was meant for something,"
It said to its friend, the sky,
"I was sure of a nobler mission
Than just to live and die."

So, till the summer ended,
It gave a blossom each day,
To tell the home-sick stranger
Of the old home, far away.

One morning they came to the flower,
And told it she was dead,
And it gave its last sweet blossom,
As they told it what she said:

"It has been such a comfort to me,
Sick in a stranger land;
That is the message I send it,
I know it will understand."

Then the flower looked up and whispered
To its steadfast friend, the sky,

"Thank God for the mission he gave me!
With a happy heart I die."

Be sure we were meant for something,
Keep faith in the God above,
And our hearts may make some happy,
With their flowers of human love.

—EBEN E. REXFORD, *Shiocton, Wis.*

A CHARMING EFFECT.

"Yes, I would like to grow flowers," said a farmer's daughter in reply to a question of mine, "but we never can have such things, for our yard is run over so much. Pa likes to let in the calves and colts and young pigs to keep the grass down, and then brother JIMMY thinks he must have a dog, which is about as bad as the stock. Last summer I tried to raise a bed of Petunias, but it did seem that no other spot was so good for that dog to lie on, till he wallowed out every root. After that, most any shady corner suited him better."

"Then why not try house plants?" said I. "O, we have no time to fuss with them, and besides I never have any luck. Aunt JENNIE gave me some Geraniums and one thing and another, last summer, but they soon died. Perhaps I poison them, else I don't know how to care for them." "Poison them, what do you mean?" "Why, I've heard, and it seems reasonable, too, that some people poison plants by touching them and breathing on them, so that they die in spite of good care."

"My dear friend, that is all bosh! Don't you believe any such thing. Plants will thrive under proper care, but one must learn what each one requires. Now, I'm going to give you a basket of Oxalis, and a Geranium for JIMMY, with all needful directions for their care, and you must report to me in the spring your success, and what JIMMY thinks of a flower for his button-hole every Sunday, all winter. It is just possible you may wheedle him into the notion of keeping his dog out of your way next summer. Be careful, though, for brothers need as much thoughtful management as Geraniums do."

This conversation was a year ago. All things worked well, and though JIMMY

laughed about "MARY's pot of sorrel," yet he often spoke admiringly of it, and that Geranium in his button-hole whenever he asked for it was such an educator that he gave all sorts of promises for next summer's gardening, and the past summer has shown that the love of the beautiful has taken firm root in the household, for the yard had not only a Petunia bed, but many other bright flowers, and this November a small stand of plants appears in the window, with the "pot of sorrel" brightly blooming above. MARY is happy, and JIMMY is not at all uncomfortable, for he proposes to subscribe for a Magazine of some sort. "Then you can take your everlasting tidy work, or whatever you call it, and we will sit in there every cold night with a good fire. We are not going to let those things freeze, now. When you undertake a thing stick to it, I say.—R. A. H.

TREATMENT OF CALLAS.

I have a Calla less than two years old which has bloomed three times. First, last winter, some time; again in May, and now has one very large blossom and more coming. The plant has divided itself into three, meanwhile, besides some young bulbs which formed about the roots.

I noticed in the MAGAZINE, not long ago, a question about what kind of pot to use for the Calla. I like a jar, not a crock, but a butter jar, and have always used a gallon jar for them after much growth. Take the young bulbs from the roots when repotting the old plants, and start them in the top of the jar with the old ones until green shoots show an inch or two, then move into a quart tin can, with nail holes to drain, three or four in a can, and water freely until they grow so as to crowd their leaves somewhat, then put each one in a jar, which should be filled two inches with small lumps of coal, two inches well rotted manure, a little soil. then the plant and fill to within an inch and a half of the top with good soil. Keep moist, and about once a week in summer, and half as often in winter, shower till the pot stands full of water. By this treatment the jar is soon filled with white roots, then great leaves grow up and up, and in a few months, only weeks sometimes, the flower buds appear. Give plenty of light, some sun-

shine, and an abundance of water for ten months in the year. Let them rest through July and August, then repot. There is no plant more accommodating or that will give a finer show for the outlay than the Calla. Some prefer to grow the plants in a mass, five or six in a large flower pot with drain, but the Calla is a gross feeder, and where so much is washed away, much more must be given and more care is required about watering. The plants will give an abundance of bloom, but neither blossoms nor plants are so large and stately when grown in masses, either with drains or without.—R. A. H., *Smithville, Ill.*

A MOSS.

The interesting little Moss, *Timmia megapolitana*, is occasionally found along the shaded banks of rocky ravines, and is easily recognized by the position of its calyptra, or hood. In most Mosses the hood is borne at the apex of the fruit, but in this species it is usually left at the base of the capsule, where it projects upwards and forwards, thus



FIG. 1.

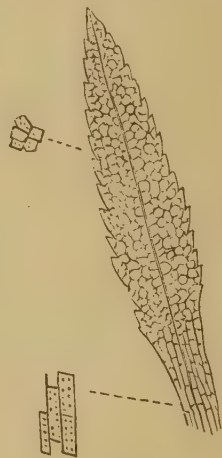


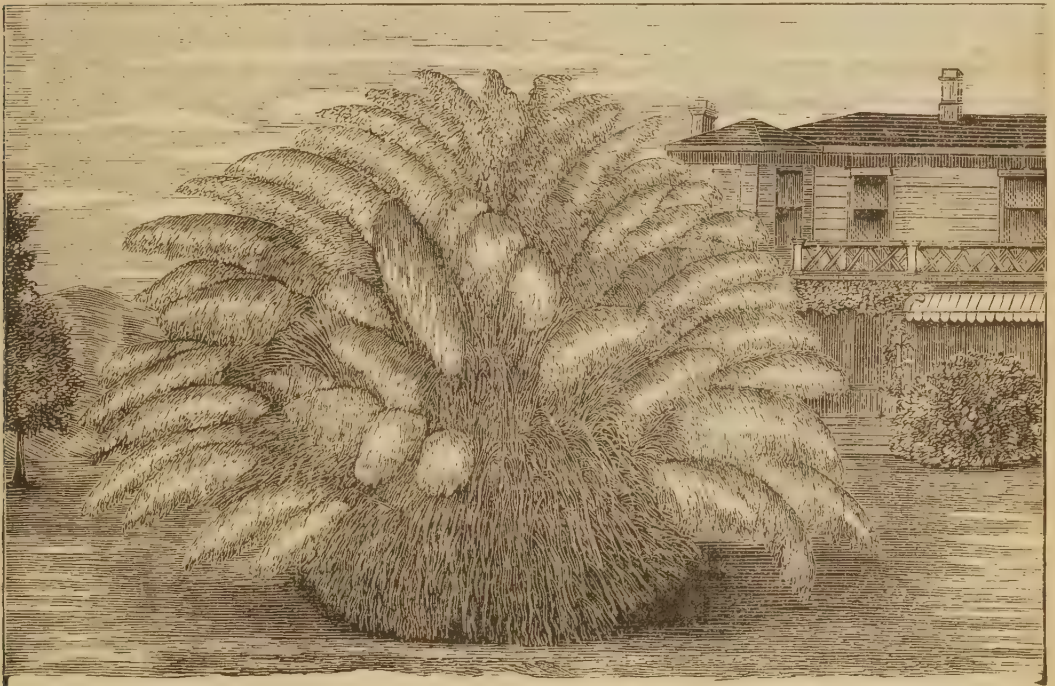
FIG. 2.

giving the little plant quite a unique and distinguished appearance. By the aid of a microscope the mouth of the capsule is seen to be furnished with a double row of teeth; the outer circle of sixteen incurved processes; the inner, a delicate membrane, divided into sixty-four cilia adherent in sets of fours at their apices. Fig. 1 is the whole plant, natural size; fig. 2, one of the leaves magnified ten diameters, showing the cell forms—at the left, at the base and toward the upper parts cells more highly magnified.—A., *Moravia, N. Y.*

PAMPAS GRASS.

The Pampas, *Gynerium argenteum*, as cultivated at Santa Barbara for the commercial value of its plumes, is a great improvement upon the plant in its native habitat. This improvement is the result of good cultivation in connection with a judicious selection of seedling plants from which to propagate. For this improvement we are indebted to our enterprising nurseryman, JOSEPH SEXTON. The propagation of plants is successfully accomplished upon the offset system. A good three-year-old plant can be divided into seventy-five or one hundred parts,

bushy. The plant photographed stands twelve feet high, and is about the average size of a five year old plant. When the plumes are left on older plants undisturbed to mature they run up much taller, or fifteen to eighteen feet. As regards cultivation, we give about the same as for corn or fruit; land that will produce a good crop of corn here, will grow good Pampas without irrigation, notwithstanding we get no rain, usually, from April 1st to December. The plumes begins to appear about the first of September, and when the tip is out of the sheath three or four inches



CLUMP OF PAMPAS GRASS ON THE LAWN AT SANTA BARBARA, CALIFORNIA. FROM A PHOTOGRAPH.

each one of which will make a good plant, which plants, the second year after setting out, will produce about fifty good plumes, yet we often get one hundred, and sometimes more, from single plants of that age. The third year the product amounts to from one hundred to one hundred and fifty plumes each. The fourth and fifth years they are considered the best, and the product may vary from one hundred and fifty to three hundred plumes a plant, each year. The Pampas thrives best in a moist, rich loam, and there produces the best plumes, which in many instances measure forty inches in length, with a spread in width of two feet, and a few have been found four feet long, but not so full and

they are pulled and placed upon the warm, mellow earth, where they remain until cured, which requires two or three days, during which time they are shaken up singly and turned two or three times, so as to bring each side to the sun by day and dew at night, to whiten them. When properly cured, it is well to place them in layers a foot or more in thickness, on shelves in a closed building, where they generate a little dampness, and thereby can be packed more compactly in boxes for shipping. Here, in Santa Barbara, we have a climate just suited to the successful cultivation of the Pampas, and grow the finest, the largest and the most graceful Pampas plumes found in the known world.—R. T. B.

THE PEANUT.

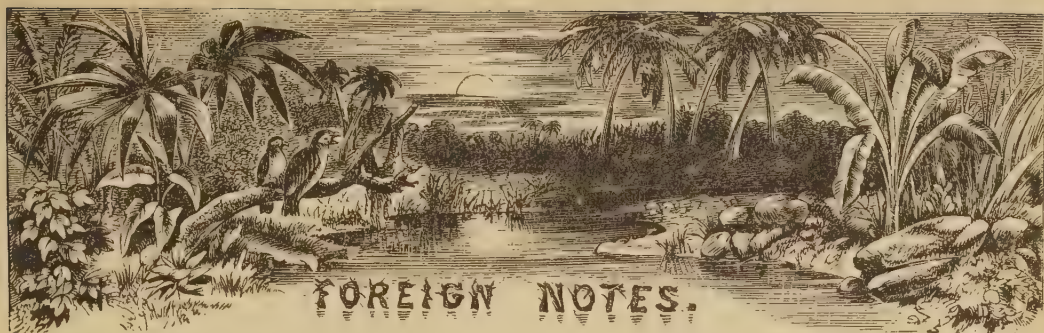
The Ground-nut, *Arachis hypogæa*, is becoming one of the important staple productions of the soil. A late number of the *Gardener's Chronicle* gives an interesting account of it. On the west coast of tropical Africa, north of the Congo River, it is the principal crop, and many thousand tons are sent to Europe from that part of the world annually, chiefly to France. A very large and crowded population is supported mainly by this prolific and nutritive plant. After burning off the grass and weeds, the African women dig the ground superficially with little hoes; drop the seeds in October and November, and begin to use the green nuts in April. They are said to be really delicious then, roasted in their husks, and they are mashed between stones, for use in soups. In July and August the nuts are thoroughly ripe, and are gathered for storage and sale. The natives used to separate the valuable oil for export by squeezing the pounded seeds in hot water with the hands, but as it is very easily expressed cold by machinery, and as enormous quantities are now called for, the primitive African process is left far behind. Great quantities are produced in India, and the price of the ripe nuts has declined from \$100 per ton to \$70. The oil is used as Olive oil, which it much resembles in blandness, sweetness and limpidity, and it is now a principal ingredient in toilet soaps, creams, &c. The residual cakes are valuable cattle food. The nuts are not so much in favor with English youth as they have become with Americans. They are called there, by the children, "Monkey nuts." The *Chronicle* says that in America a sweetmeat is prepared from them by parching them and treating them with sugar; they are also beaten into a pulp and sold for use as chocolate, and roasted as a substitute for coffee. Nothing is said about that short and simple process of consumption which leaves our halls of amusement covered with shells after an evening performance.

This MAGAZINE has given, in previous volumes, extremely valuable and interesting lessons on plants—Botany, for Little Folks. The Peanut shows, very distinctly, the plumule of the coming plant, beautifully formed, and ready to be expanded and extended when sufficient warmth and

moisture come. All seeds have this sort of preparation made, but it is not so plainly visible to the unaided eye in many.—W.

PROTECTING TENDER ROSES.

Nothing can be finer as a flower, or more fragrant than some of the hardy sorts of Roses, which flower only in June, but during that brief season of theirs cover themselves with bloom. These, however, have little or no beauty later in the summer, but appear as brown, straggling briars. The more tender, ever-blooming sorts, as they are called, preserve both a capacity to renew their bloom until arrested by October's cold, and a green freshness and brightness of foliage and stem, which adds greatly to their extreme beauty. The question in regard to them is, how to preserve them from injury by the winter. The hybrid perpetuals, or remontants, are much planted, because they are half hardy; but they, if not protected, suffer so much in ordinarily severe winters as to be incapable of yielding perfect flowers. Their shallow roots, like those of the quince and grape, are harmed by frost unless protected by a mulch of some sort, and their more exposed tops are often killed outright, especially if growth has been continued rather late. As they, in general, have very stiff, erect stems, they will not bend to the earth readily, so it is common to tie them together loosely, and either wrap them loosely and thickly, or turn a thick paper sack over them. But as the best security is found in the bosom of mother earth, we have been in the habit of pegging down, in June, each branch that issues from the collar, so that, in November, the whole can be laid down quite flat upon the bare soil, and covered with sods, (grass up) or with branches of evergreens. We used to take up the Tea Roses and put them into a cool cellar, where they kept very well, but could never re-establish themselves after being set out, in time to bloom with an effect at all comparable to those left in the ground and preserved there from winter damage. It is easy to lay down and cover the low, slender growing Teas, but their wood should be ripe, the ground kept as dry as practicable, and the covering made wide and thick.—W., *Tyrone, Pa.*



GARDENING IN SWITZERLAND.

An English gardener lately visiting Switzerland says, in *The Garden*, that "as regards public gardens, there is nothing in Switzerland which can compare with our own parks or those of Paris and other Continental towns, which may be owing to the fact that the Swiss are surrounded by Nature in her most beautiful and picturesque forms, and have, therefore, never much cared to expend money upon the creation of such places, which at their very best can only be a feeble imitation of that which the great Architect has so bountifully endowed them with."

But he states that much has been done of late years to improve the aspect of large towns, by keeping public gardens in order and forming new ones, and when practicable, forming and planting public promenades. "The trade done by florists in the neighborhood of towns for cut flowers all through the winter is really very large, and at that time of the year they find it impossible to grow enough, the custom being to import them from Nice. Violets are bought at ten francs the kilo, about two pounds. Roses and Carnations twenty-five centimes each, and very fine Mignonette, such as we cannot grow under glass here at that time of the year, also comes to hand, whilst white Lilac comes from the Paris growers. Everlastings and Gypsophila are also largely used in the collection of winter bouquets. The purchasing of flowers is of such a common practice amongst the Swiss that all classes have to be provided for even in the dead of winter, and at that time a hand bouquet may be bought for a franc. I once had a good deal to do with bouquet making in English nurseries, and when an order came in for a shilling bouquet in the win-

ter season it was refused; nothing under half-a-crown could be made. Neither could it, perhaps, as bouquets are generally made in this country, but in this matter Swiss thrift again peeps out, and by a judicious mixture of flowers with hardy greenery, such as the small-leaved Periwinkle and fresh Moss, a really bright and attractive bunch of flowers is made up for the money."

MELBOURNE BOTANIC GARDEN.

A walk through our Botanical Gardens just now is calculated to have the happiest influence on the mind, a most elevating tendency, equal, if not excelling, the teaching of the best books. There are at present, October, in splendid bloom about a dozen grand Tulip trees, full of odoriferous blossoms, some of the most beautiful coloring. The varieties are *Magnolia spectabilis*, *Magnolia superba*, *Magnolia Lenne*, and Yulan, a Chinese plant. In another part the beautiful double-flowering Peach tree, is full of blossoms, and one hardly knows which most to admire, the beautiful knots of delicately colored flowers or the delightful odor. These, with the Acacias, all more or less in bloom, and many smaller and less noticeable flowers, make up a mélange of sweet odor which is truly enjoyable, and with beautiful velvety lawns sloping down to lagoons neatly bridged over by rustic constructions, with wild fowl sailing and flying about in the bright sunshine, afford a sight which would make the most hypochondriac cheerful. Nothing appears to have been omitted to meet the comfort and rational enjoyment of visitors. Seats for the tired, water for the thirsty, and quiet for the contemplative, and free to all. It is a noticeable feature, and happily points to the decrease of the old Vandalic spirit,

very little is to be complained of beside plucking a few flowers; and this is the expression of a natural weakness only, and almost a pardonable one, but it is "against the rules." The gardens are the property of the people and they respect them.—S. W. VINEY, *Melbourne*.

JAM MANUFACTURE.

It is remarked by *The Gardeners' Chronicle* that "a leading trade journal (*The Grocer*) sheds a little wholesome light on the wholesale manufacture" of jam in England. "It states that 'it is a mistake to suppose that fruit is absolutely necessary to the manufacture of preserves.' The writer of this passage describes a visit to a large jam-producing factory, in which he found that the work was being bravely carried on without the aid of fruit at all. Jams of various kinds were being produced before his eyes—Currant, Plum, Apricot, Strawberry, Raspberry, and Gooseberry—yet neither Currant, Plum, Strawberry, Apricot, Raspberry, nor Gooseberry was in the building. Turnips serve the purposes of the fruits. The flavoring matter was extracted from coal-tar, and the resemblance to Raspberry and Strawberry jam was further produced by mixing the boiling compound with small seeds of some cheap innocuous herbs. A common form of sugar is used, and this is the only honest ingredient in the mass. These preserves are offered as made from 'this season's fruit.' There will therefore be no lack of jams; but what questionable compounds they are!" Do any of our readers think that the talent of our own countrymen is less developed in regard to jam and jelly manufacture than that of our transatlantic cousins? Perhaps a little investigation might be satisfactory.

A WONDERFUL STRAWBERRY.

All the fruit humbugs are not confined to this country; for instance, an enterprising French country priest, who perhaps has found his salary too scanty for his increasing wants, or who wishing to benefit his countrymen by his good works, has experimented in raising seedling Strawberries, and now, having found in his bed one of unusual merit, offers it in glowing terms to his parishioners and countrymen. It is described as about an inch and a half in diameter, and of a very ruddy

color, with white pulp, and exquisite odor. Its numerous flowers succeed each other without interruption from spring till frosts, and the plants have flowers and fruit all the time together, even the young runners of the same year bearing when two months old. This kind, different from all others in the world, is destined, according to the discoverer, to take the place of all others. Only a limited number of plants are to be disposed of this season, and at the extremely modest price of two dollars (10 francs) each, consequently it is probable that many who may read this account may be obliged to do without them for another year.

ORIGIN OF CHRYSANTHEMUMS.

The Chrysanthemum was the subject of a lecture by the Rev. G. HENSLOW, a short time since, before the British Royal Horticultural Society. It appears that "this plant is referable to two distinct species, *C. Indicum* of LINNÆUS, and *C. Sinense* of SABINE, though until Mr. SABINE so determined them, in 1823, they had been confounded. The first named species is, without doubt, the origin of all the Pompons. With regard to the large kind, or *C. Sinense*, the first notice of its cultivation in Europe was by BREYNIUS, who describes six kinds in Holland in 1688 but it is strange that they all disappeared, and were only introduced one hundred years afterward into Europe by M. BLANCHARD in 1789." Very many varieties had been cultivated in China and Japan long previous to that time. "In 1862, Mr. FORTUNE introduced the new Japanese races, some with long petals and curious mouths to the corollas, suggesting the title of 'dragons.' It appears, however, on the authority of CRAWFORD, Consul of Oporto, that the Japanese forms had been long cultivated there before their introduction into England. The origin of the different forms of these flowers lies mainly in the changes undergone by the corollas of the disc or eye florets. In the wild form the ray florets are strap-shaped, the disc florets regularly five-toothed, tubes to their corollas." New varieties of this flower are now produced every year from seed. Like the Dahlia and the Aster, there seems to be no end to the varieties after breaking away from the natural type.



EXPERIENCE AND INQUIRIES.

What would I do without your *MAGAZINE* and *FLORAL GUIDE*! They open up to me such visions of wonderfully beautiful gardens and conservatories—neither, alas, do I possess—but I have three large bay windows with southern and western light. In these grow, summer and winter, most of the known house plants, except *Roses*, with these I never have any success, therefore devote energies to those that are sure to bloom. A reliable florist here told me that *Gloxinia* would not bloom out of a conservatory, and declined to sell a bulb. Having rather an inclination to overcome floral difficulties I procured a bulb from you two years since, and wonder I did not kill it with experiments. In the first place I could not tell which was crown and which was root side of the bulb, so set it sideways in a pot, covered it with a piece of glass and set it in the full glare of the summer sun. It made only three puny leaves that season, but grew a little during the winter. In the spring of 1882 I got some information in "*VICK*" as to the treatment; kept it more in the shade and watered it daily, being rewarded by a show of brilliant pink blossoms from July until October. Now it rests in a dark cellar, and I am hoping even better things next summer. In the two years that I've taken the *MAGAZINE* I've learned a great deal, but am still anxious for more information, therefore ask that the following queries may be answered in an early number.

1. Is there such a plant as a purple *Calla Lily*? I've read of it in recent newspapers.
2. What proportion of guano should be used to one gallon of water for house plants and window boxes?
3. How long will *Gloxinia* bulbs last and remain in satisfactory blooming condition?
4. Is the soot used for fertilizing, that from coal or wood, or is it immaterial? I have used both ignorantly, and my plants look well.
5. How should kerosene oil be used for killing insects on plants. What proportion of oil to one gallon of water? I've generally succeeded in destroying the foliage as well as the vermin.
6. How long will a Feather *Hyacinth* live and bloom? Three years ago a plant was given me which the donor called *Tritoma*; then it was but an offset from a large bulb; it grew a year without rest, and then bloomed finely, having but five green leaves. Many persons who saw it said it was not *Tritoma*, but could not tell what. One florist declared it to be Feather *Hyacinth*. It rested all last summer, and is now in bloom again. The bulb has increased in size till it is as large as a fair sized *Apple*, and there are two offsets. The main bulb has at least a dozen leaves this winter, and one flower stalk about a foot high surmounted, or rather encircled, with a number of pink bell-shaped flowers, the whole form

of flower is not unlike *Tritoma*. I procured two bulbs this autumn which were advertised as Feather *Hyacinths*, but they are not yet far enough advanced to determine points of resemblance.—*DOROTHY, St. John, N. B.*

1. We should not like to say that Burns' line, "Some books are lies frae end to end," is applicable to the ordinary newspaper, but it is certain that a great many errors find lodgment there, and that of the purple *Calla* is one of them.

2. Two or three ounces of guano to a gallon of water is a proper proportion for house plants. Keep the mixture well stirred, as the guano not being actually dissolved by the water settles to the bottom.

3. *Gloxinia* bulbs have passed through their best period after flowering the third year, and then commence to deteriorate.

4. Soot from either wood or coal is excellent as a manure.

5. Kerosene oil may be used for destroying insects on plants by taking a tablespoonful of oil and mixing it with half a cupful of milk, and then diluting the mixture with two gallons of water. Apply the liquid with a syringe and afterwards rinse with clear water. This substance is death to plant insects, and we have never heard of its injuring the most delicate plants when used as here directed.

6. The Feather *Hyacinth*, *Muscari Monstrosum*, in a favorable soil and situation will perpetuate itself by continuous production of young bulbs, and thus occupy one location for a long time, but it is best to transplant them every two or three years. The description of the plant here given does not apply either to the Feather *Hyacinth* or the *Tritoma*, and there is no likeness between these plants that would make them liable to be mistaken for each other; and the Feather *Hyacinth* blooms in spring, and the *Tritoma* late in fall.

DIONÆA—CAMELLIA CUTTINGS.

Will you kindly, through the medium of your MAGAZINE, give me what information you can concerning a plant called Venus's Fly-trap *Dionæa muscipula*, what soil it flourishes in; also, whether one or more living specimens could be procured for a gentleman to take to England in March, if so, at what cost? I should also be glad to know whether *Camellia* cuttings can be struck in sand without bottom heat—at between 50° and 60° of temperature.—C. M. B. SCHREIBER, *Deer Park, Ontario.*

Dionæa muscipula is a bog plant, and as such may be cultivated. It is a native of sandy bogs of the pine barrens of North Carolina and adjacent parts of South Carolina. As the capacity to assimilate animal food through its leaves has been attributed to this plant, it has had especial interest of late years to scientists and cultivators who have made it a subject of close investigation; English naturalists especially have engaged themselves with it, and undoubtedly it may be found in many plant collections in England, both private and public. We cannot refer to any one in this country who can supply it.

Camellia cuttings do not require heat in their early stage. The best time to make cuttings of the ripened wood is in November; five-eyed cuttings with two or three leaves are the best. They should be placed in a box of moist sand packed hard in the box, making a hole for the insertion of each cutting, and packing the sand firmly about it. For a period of six weeks the cuttings should be kept at a low even temperature of about 45°, during which time the lower end of the cutting forms a callous; afterwards the box should be given a slight bottom heat, and the air temperature be raised 10° higher, and this condition be maintained for two months or little more, when bottom heat will no longer be necessary, and most of the cuttings will be rooted. Do not allow the sand ever to become dry.

ROSE—PRIMROSE—GRAPE VINES.

I want to tell of my *Hermosa* Rose. Last spring it was one year old, had given but three blossoms in the house during the winter, and I felt rather disappointed over it. In May it was set in the ground with plenty of leaf mold about the roots; it soon began sending out branches, and in August it had twenty-three large, perfect flowers, and in September fourteen more, and was full of buds when I potted it for the cellar in October.

Last winter, my white single *Primrose* bloomed all winter, as it had done the previous one. During the summer the buds were kept pinched off, and the plant was put into a large pot with plenty of black,

mellow soil from under an old log in the woods. In October the blossoms began opening, and they were a deep red, while heretofore they had all been white. The stems of the plant had also changed from a light green to a reddish green color. Can you tell me the reason of this? I had but the one *Primrose*, so there could be no mistake about the change.

Last spring I procured three choice *Grape* vines, one and two years old. They grew finely all summer, but in November were taken up and potted for removal to another home. They are now in pots in the cellar. Should they be watered at all during the winter? Will they be likely to do well in the cellar? Please tell me when is the best time to take cuttings from *Grape* vines for starting new plants, and what is the best manner of starting them?—MRS. J. R., *Clinton, Iowa.*

Hermosa Rose is pretty hardy, and if the shoots had been bent to the ground and fastened, and the plant well protected by leaves, it would endure the winter without removal.

It is probable the fresh, rich soil restored the plant to its vigor and color.

The soil containing the *Grape* roots should not be allowed to become dry. The information desired about propagating *Grape* vines will be given in our next.

GARDEN SLUGS.

I am very much troubled with slugs in my garden, so that it is almost impossible to raise annuals; or any succulent plants, such as *Dicentra*, *Delphinium*, &c., and even bulbs they eat off as soon as they show above ground. I have tried almost everything I have heard or read of to destroy them, such as lime, salt, ashes, kerosene (diluted); these may check them a little for a time, but their eggs appear to be imbedded in the soil, and are continually hatching out.—MRS. E. B. BERKELEY, *Cal.*

Baiting the slugs with bran is probably the surest way of catching them. The easiest way to proceed is to take some pieces of slate, or flat stones, or flat pieces of tin, and lay them about in the garden among the plants, distributing them very liberally; just at sundown go out and place about a teaspoonful of bran on each piece of slate or tin and the slugs will soon become aware of it, and begin to gather and feed on it. In about two hours when it is dark, go out again with a lantern and a pail containing salt and water, and pick up each piece on which the slugs were found feeding, and throw slugs and bran into the brine where they instantly die. It is well, also, to go around again in the morning, and many slugs will be found hiding under the pieces of slate, and can be destroyed in the brine. By following up this method persistently for a few weeks the garden may be effectually rid of the nuisance.

JASMINE—VINCA—LAURESTINUS.

1. Please tell me how old the *Jasminum grandiflorum* must be to commence blooming. I notice in my catalogue that it is described as easy of culture, blooming from November till May. Now, some writers advise keeping it cool and nearly dry in winter. I should not suppose it would bloom if kept that way. It is new to me, so I wish to know its yearly treatment to obtain winter bloom.

2. My Vincas are blooming finely. Can they be cut back in spring and kept dry during summer, so as to prove satisfactory for another winter?

3. Does the Laurestinus set its buds several months previous to blooming as the Azaleas do?

I have over eighty plants, all growing finely, and many in bloom.—M. F. GOODWIN, *No. Woburn, Mass.*

Jasminum grandiflorum is an excellent winter blooming plant, requiring ordinary greenhouse treatment. Give it a soil formed of fibrous loam taken just below the sod of an old pasture and a little sand, and a little old rotten manure, the sand and the manure being in equal quantities, and each about a quarter the amount of the loam. A plant that has bloomed during winter can be cut back in spring after the frosts are past, and be planted out in the open ground for the summer. Pick off any flower-buds that may appear up to August. The middle or latter part of September take up the plant and pot it in a medium sized pot, give water and remove to the house; keep it in the shade a few days until it has partially recovered from the removal, and then bring it fully into the light. Plants usually begin to bloom in January and continue until some time in the spring.

Vinca rosea and its varieties are perennials. They can be planted out in the spring in a dry, warm place, and in September can again be potted, and taken in. But the flowers decrease in size with the age of the plants, and it is best to keep a succession of young plants by sowing seeds annually.

Laurestinus sets its buds in autumn after it has made its growth, and blooms in our greenhouses in December and January.

SHAD-BUSH.

I think some one wrote, some months since, about the Service berry, Shad-bush, or *Amelanchier Canadensis*, and I want to ask if there are not several varieties of this shrub or tree. I have seen, in Pennsylvania, trees a foot through and twenty feet high. I have here, on my grounds, two sorts, one grows about ten feet high, and is very full of fruit nearly every year. The other is a dwarf sort, said to come from the Rocky Mountains, and is not over four and

a half to five feet high, and the fruit is very much larger than the other, and I think not quite so early. The leaves are also larger, though of same general appearance.—J. H. W., *Sterling, Ill.*

Five different varieties, besides the typical species, are described by GRAY, of this native of our thickets. Some of them are much dwarfer and bush-like than others. A group of the six kinds would be both interesting and ornamental on large grounds.

CAMELLIA—CACTUS—LEMON.

1. Will *Camellia Japonica*, raised from seed, blossom without being budded or grafted?

2. Do all varieties of Cactus blossom?

3. Does the soil around a bearing Lemon tree need much moisture, and should it be enriched with manure while in bearing? The buds fall from mine. The soil is composed of about equal quantities of sand and loam.—MRS. E. J. C., *Princeton, Ill.*

1. Camellias raised from seed will blossom as certainly as any other plant raised in that way. Budding and grafting do not cause plants to bloom; these operations are employed to propagate varieties.

2. All varieties of Cactus blossom, without exception.

3. The soil employed for the Lemon tree, as here described, is probably a good one. When the tree is making its growth it is well to provide it occasionally with manure water, but when in bloom and fruit only clear water. Too dry an atmosphere, too little water, or too much of it, will cause the buds to drop. Do not keep the soil constantly soaked, but give a good watering and let it pass off and the soil to become dry, but not dust dry, before giving water again. In winter, with a low temperature, supply less water than in spring or summer. Give the plant a light situation, and admit air when it can be done conveniently, and keep the temperature about 50° to 55°, allowing it, if need be, to fall a few degrees lower at night, and to rise ten or twelve degrees in the sunlight.

HYDRANGEA.

Can you tell me what ails my *Hydrangea*? I had it in a pot one summer, it grew some, but did not bloom. In the fall I put it in the ground, it has been there two winters and one summer. It grows pale and spindling, and has never bloomed. I don't know what to do with it.—MRS. M. T., *Bloomington, Ohio.*

In spring cut all the branches well back, and dig in some good manure around the plant, and keep it well hoed during the summer.

LILIES—BOUVARDIAS.

1. Is *Lilium Brownii* hardy with or without protection in our climate, and will it succeed as well with spring planting as fall? Is it easy to get to grow well?

2. Is *Lilium tenuifolium* hardy, and will it succeed with pot culture, same as described for *Auratum*?

3. Will *Bouvardias* winter in a pit, or good cellar that is light, dry and supplied with air in suitable weather, and should any water be given, or plant kept dry?—P. I., *Acton, Ont.*

1. *Lilium Brownii* has proved very unsatisfactory and difficult to manage. It appears to be tender and unable to bear our winter. The bulbs kept over for spring planting decay in great numbers with all the care we can give them. It is doubtful if any mode of treatment in this climate will give adequate results.

2. *Lilium tenuifolium* is hardy, and a very excellent and pretty variety. If kept cool and not forced it will probably respond well to pot culture, though we have had no experience with it in this way.

3. *Bouvardias* may be wintered in the manner proposed, with just enough water supplied to keep them from drying out.

PLANTS STORED IN CELLAR.

Will the *Hoya*, or *Wax Plant*, live in a light, dry cellar and can I keep *Vick's Pomegranate* and the *Plumbago* in the cellar through the winter, and what treatment must they have?—MRS. A. P. C., *Dexter, Maine.*

The *Pomegranate* may be kept very well in a dry cellar through winter, but it would be hard treatment for the *Hoya*, and not much better for the *Plumbago*. Just how much such treatment the *Hoya* could have and survive we do not know, but should advise as little of it as possible. In a cellar containing a furnace, where the heat ranges from 40° to 45° it might be wintered, but an ordinary cellar would prove too cold and damp.

A PRETTY WILD PLANT.

I enclose a pressed specimen of a wild flower which I would like to have named in the *MAGAZINE*. It grows here in the woods and along shaded fences. It bears pure white, *Ageratum*-like flowers, and blooms the latter part of August and through September. It is very pretty to make up into bouquets, and it grows just as well cultivated in the garden as in the woods, partly shaded.—MRS. G. E. B., *Shelby, Ohio.*

The plant here described is the *Ageratum*-like *Eupatorium*, *E. ageratoides*. It is worthy a place in the garden for its white flowers freely produced for a long time. Being perennial and hardy, its culture is of the simplest kind. It will adapt itself to almost any location.

HOUSE PLANTS IN SHADE.

"I have only a shady window for my plants, how should they be treated to do well in such a place?" This inquiry from a lady a few days since brought the reply that the true way to succeed under such conditions was to raise only those plants that would thrive in the shade. Now, as many others are probably similarly situated, it may interest them to know what plants may be so employed. Among others may be mentioned the *Calla*, *Richardia Æthiopica*; this will do well with a good light but without direct sunshine, so, also will *Mignonette*, *Sweet Alyssum*, and the different varieties of cultivated *Alyssum*, including the handsome variegated one, *Fenzlia dianthiflora*, *Mimulus* of different varieties, including the *Musk Plant*, *Nierembergia gracilis*, and *N. frutescens*, *Whitlavia* of different varieties, *Cuphea platycentra*, *Fuchsias*, *Gloxinias*, *Habrothamnus elegans*, *Abutilon*, *Laurestinus*, *Aspidistra*, and the different kinds of *Periwinkle*, and *Cyperus alternifolius* which can be kept in a vase of water. Besides these, some bulbs such as *Hyacinths*, *Crocus*, and *Snowdrop* may be brought into bloom.

If the window is a bay, with sash doors shutting it off from the room, *Camellias*, *Oranges* and *Lemons* will thrive, and *Cobæa scandens*, and the variegated *Cobæa*, and *Lapageria*, will prove useful climbers, while *Euonymus Japonica* of different varieties, and the green-leaved *Dracænas*, and some of the low-growing *Palms*, and many species and varieties of *Ferns* will prove attractive for their foliage. With a list like this to select from, and making window culture a matter of primary importance, and not attempting it merely for the purpose of keeping over winter plants that have done their full duty in the garden during summer, one may have house plants that will do credit to all the skill expended on them.

EARLY GEM POTATO.

I purchased, last spring, one pound of the *Early Gem Potato*, and from it I raised one hundred and sixty pounds of nice *Potatoes*, some weighing one pound each; besides, I sold one dozen plants and one *Potato* out of the pound. Who can beat it? If it is not too much trouble I wish you would give the history of this *Potato*.—R. M. M., *Plymouth, Ind.*

WATERING PLANTS.

A letter from one of readers some time since contained an inquiry about the care of a plant of *Stevia*, remarking that she had one that was in a very poor condition and becoming worse, and that she had complied strictly with our published directions in the care of it "watering it every other day." We knew that we had never given such directions, and so informed her, at the same time giving the best advice in regard to it. A reply brought the following acknowledgement: "I was mistaken about watering the *Stevia*. I saw somewhere directions to water every other day, and thought it was in last year's GUIDE."

This incident is brought to notice to guard our readers against all such directions. No one having a knowledge of plants will direct that they should be watered so many times a day, or so many times a week. Such instructions are not only worthless but absolutely harmful as far as followed, and can only result in spoiled plants, and consequent disappointment. It is like following the medical advice of an ignoramus; there is as much quackery offered to the public on horticultural as on medical subjects. When a plant should have water depends upon the dryness of the soil, and this is contingent upon other conditions, such as the moisture, the heat, and the movement of the atmosphere. Judgment must determine when a soil lacks water, and by practice one can determine this point with great accuracy.

FIGS.

I have received my first number of the *MAGAZINE*, and find some useful hints and suggestions, and one of these is R. G.'s article on wintering Fig trees. I have raised some figs away up here in the north, but never left my trees out in the ground. I had not thought of this mode of protection. I feared to bend my tree lest it should break, but have taken my tree up with a ball, and kept it in the cellar, placing the ball in a box and in the spring planted out in the open ground when all danger of frost was over. But three years ago water collected in my cellar and killed my Fig tree. I learned the lesson that Fig trees can't live in water. I have several small trees now, but keep them under the

stage of the greenhouse, but they do not seem to do so well; they are large enough to bear, but have not as yet matured any fruit. I do not know what variety of Fig I have, they are rather large and yellow. Fig trees can be wintered in the cellar, if the cellar is dry, and each season bear a crop of fruit out in the open ground.—J. KLINGLER, *Upr. Sandusky, O.*

TUBEROUS BEGONIAS.

Pot, during the end of September, small tubers in 3-inch pots, large, in 6-inch pots, using the following compost in potting: 2 parts leaf mould (coarse), 1 part rich loam from decayed sods if procurable, $\frac{1}{2}$ part sand, sharp, $\frac{1}{2}$ part bruised charcoal (wood ashes), and bone dust, superphosphate of lime, in the proportion of one pint to a barrowfull of compost. Pot lightly, covering the tuber and the surface with fine charcoal or coir refuse, water very lightly and keep close and warm until the shoots appear, then give plenty of air, light, moisture, shade and shelter. Where hardy Ferns thrive Begonias do likewise. Repot when plants are strong into 6-inch, 8 or 10-inch pots; stake carefully, and tie up when growing. Do not grow under glass, but under a scrim? screen—paper hanger's canvas—roof not more than 6 feet 6 inches high, the sides of the structure to be wind proof. Keep plants near the light when growing. Tuber Begonias are unrivaled as flowering foliage plants for table decoration, &c., continuously blooming for from 4 to 6 months, if grown as directed. The cultivation of T. Begonias is almost unknown in Victoria.

The above hints on tuberous Begonias, as our readers may perceive, were written in Australia. The paper was accompanied by the following note from Mr. S. W. VINEY, who frequently favors our readers with news from Australia, and one of whose communications is given on another page in this number. "I send you a contribution from a skilled amateur florist, Mr. ELLIOTT MOORE CAIRNES (a member of the Horticultural Society of Victoria), and a very general prizetaker in Begonias and Pansies at most of the horticultural shows in Victoria. Mr. C. has, apparently, overlooked the fact that you are in the northern hemisphere, and means in your climate the equivalent

month, March, where he mentions September." We may properly add that the structure described for starting the young plants would not be suitable in this country, at least north of the Ohio river, but a glass house or frames with glazed sash would be necessary.

A WORD FROM OREGON.

Why do we see Chrysanthemums classed with tender and hot-house plants? Are there some kinds that are more delicate than others? What we have seem to be about the most hardy of anything. They are in bloom to-day (December 22), in the garden, and some of them quite as fresh as at any time.

In reply to the inquiry of R. A. H. in the December number, I will say that the Heliotrope does grow as large and fine as represented in the colored plate, if not more so, for we have them all summer in our garden; in fact, I have never seen a colored plate in the MONTHLY that did more than bare justice to the flowers represented (as they grow here), excepting the Rose. I think the climate is not suitable to Roses here, or, else, we don't give them the right treatment, or they are "too fussy."—MRS. R. K., *Jacksonville, Oregon.*

There can be no exact classification of plants into hardy and tender; all of them are hardy somewhere, and tender somewhere. Through the New England States, New York, Canada, and Michigan, and the States of the same latitude west to the Rocky Mountains, the Chrysanthemum must be treated as a green-house plant, but at the South and in many or most parts of the Pacific States it will stand the winter.

The climate of most parts of Oregon is no doubt very fine for most of the soil products of the higher temperate zone. We shall expect to have a better report, yet, concerning Roses there, apparently they should succeed.

THE JAMES VICK STRAWBERRY.

The report has been circulated by some parties that the James Vick Strawberry is an old variety sent out under a new name; that it is the same as the berry known as Captain Jack. This report is contradicted by Mr. SAML. MILLER, of Missouri, who raised the new variety. "I am the originator," he says, "but have not sent it out except to a few friends to be tested. It is now being offered to the public for the first time. The James Vick must stand upon its own merits. That it will bear more good-sized, handsome berries than any other Strawberry I ever saw is a fact that anyone may be assured of by planting it."

A CALENDAR OF ODORS.

In *Memoirs of Old Friends* CAROLINE Fox says, under date of March 18, 1833: "J. S. MILL (John Stuart) gave me the Calendar of Odors, which he has written for the first time.

"A Calendar of Odors, being in imitation of the various calendars of Flora by Linnæus and others.'

"The brilliant coloring of Nature is prolonged, with incessant changes, from March till October; but the fragrance of her breath is spent before the summer is half ended. From March to July an uninterrupted succession of sweet odors fills the air by day and still more by night, but the gentle perfumes of autumn, like many of the earlier ones here for that reason omitted, must be sought ere they can be found. The Calendar of Odors, therefore, begins with the Laurel and ends with the Lime.

"March—Common Laurel.

"April—Violets, Furze, Wall-flower, Common Broad-leaved Willow, Apple Blossom.

"May—Lilac, Night-flowering Stocks and Rockets, Laburnum, Hawthorn, Syringa, Sweet Briar.

"June—Mignonette, Bean-fields, the whole tribe of Summer Roses, Portugal Laurel, various species of Pinks.

"July—Common Acacia, Meadow-Sweet, Honeysuckle, Sweetgale or Double Myrtle, Spanish Broom, Lime.

"In latest autumn day, one stray odor, forgotten by its companions, follows at a modest distance—the Creeping Clematis—which adorns cottage-walls; but the thread of continuity being broken, this solitary straggler is not included in the Calendar of Odors.

"To MISS CAROLINE FOX, from her grateful friend, J. S. MILL."

RAISINS FROM CALIFORNIA.

Our correspondent, A. P. ADAMS, who contributes the article on California Raisins, has sent us some fine samples of the Raisins of the last season's growth and cure, and they are proof of the high quality of this production of California. They are clean, plump, meaty, tender, excellent in flavor, and with a handsome bloom; they are all that can be desired or imagined, and the demand for them will be practically without limit.

NATIVE FERNS.

Our common Maidenhair Fern is so well known by most persons that it will be instantly recognized by the accompanying illustrations. The genus *Adiantum*, comprising all the different species or forms of the Maidenhair, is one of the most distinctly marked and at the same time one of the most admirable of all the groups of Ferns. The name, Maidenhair,



ADIANTUM PEDATUM.

was first applied to the species best known in Europe and England, *A. Capillus-veneris*, and of which it is a translation. The Latin name was given by LINNÆUS. *Adiantum* is an ancient Greek name meaning not wet, or not becoming wet, from the fact that rains and dews wet but little the upper surfaces of the fronds, from which the moisture rolls in little drops. In the classification of Ferns the genus *Adiantum*, is united with some others, and with the *Pteris*, into a tribe. The common feature of the tribe is, that the sporangia are borne at the margin of the fronds. In the case of the *Pteris*, itself, we have already seen that the sporangia are borne on a vein extending along the margin and connecting the ends of the other veins, and that they are covered by the edge of the frond folded over them. In the *Adiantum* the sporangia are borne at the ends of the free veins, and on the reflexed margins of the divisions of the pinnules; the distinction between these two genera is quite marked. *Adiantum pedatum*, the American Maidenhair, grows in rich, shady woods, that are somewhat moist, and usually where there are rocks and stones just

below the surface. Its height is ordinarily from twelve to twenty inches. The root-stock, about a quarter of an inch in diameter, creeps just under the surface of the soil, and is clothed with numerous little scales. From the root-stock stems are sent out alternately on each side. The stipe is smooth, dark brown or blackish, with a polished surface; at its upper extremity it branches into two parts, which again and again subdivide, usually three or four subdivisions, forming pinnæ bearing pinnules throughout their length. The general form of the pinnules is that of half of an ovate or oblong leaf with a truncate base, division being lengthwise. Each pinnule is borne on a slender stalk, and is from an inch to less than a half inch in length, and with a breadth a little less than half the length. The color of this Fern is very pleasing, being a light pea-green, the texture is delicate, and

each surface is smooth, and almost satiny. The peculiar form of the frond caused by the rachis, is most graceful and striking; in its natural position it is nearly horizontal, with a circular or oblong



ADIANTUM PEDATUM SPREAD FLAT.

outline with a breadth or diameter of six to eighteen inches. This Fern is one of the most desirable for cultivation either in the greenhouse or in the hardy fernery, and requires only that its natural conditions be imitated; a little shade, a good soil with ample drainage, and a

supply of water. It is often successfully raised as a house plant. This species grows from Canada southward to Central Alabama, and westward to the Pacific States and British Columbia. It is also found in Alaska, Kamschatka, Japan, and in the Himalayas in India. The drawing from which was prepared the principal illustration here shown was carefully made from a living specimen by Miss



ADIANTHUM PEDATUM, who with similar fidelity PINNULE ENLARGED. to nature has worked out the specimens previously published in our pages.

CHRYSANTHEMUMS.

I would be pleased to have a reply in your MAGAZINE to the following, if it seems worthy of one to you. In propagating the large Japanese Chrysanthemums, will suckers taken from the roots in autumn and potted make plants for the next season, with as fine bloom as cuttings from the new wood in spring? If not, can you give any explanation of what, in that case, seems strange, especially as the spring cuttings would probably be from the growth of suckers themselves. I ask because of the remark made on page 164, of volume 4 of your MAGAZINE. "But as suckering is one of the habits of the plant, and has a tendency to diminish the size of the flowers, the plants are best increased by cuttings." I can readily suppose that while the plant is blooming suckering might draw strength away from the flowers and cause deterioration for the time, and this may be the only meaning of the passage quoted; but do not understand how it could have any ill effect upon the future plants thereby formed.—W. H. H., Philadelphia, Pa.

Young plants of Chrysanthemums propagated from suckers, that is, by division of the roots, will have already furnished at the start some buds ready to develop into suckers, and in a short time the plant would be producing them freely; if the plant should be thus propagated in the fall, while it would not make very much growth during the dull season, it would be perfecting buds near the roots ready to develop into suckers as soon as growth commences freely. But if propagation is postponed until early spring, and is performed by means of a cutting, not by division, the plant, as soon as it is furnished with roots, will commence a vigorous growth, and may be carried along until it becomes a fine, strong plant, and scarcely a sucker will appear until blooming time, or after.

MINNESOTA HORTICULTURE.

Transactions of the Minnesota State Horticultural Society for the year 1882 is a fine report of the society for the past year. The following items are noted: The Duchess of Oldenberg and the Wealthy are the hardiest and most reliable varieties of apples, besides the Siberian Crabs, for that State. But even these "are liable to 'sun-scauld' on the southerly sides if not protected, or if not growing on very cool northern slopes." Heavy mulching with straw through the fall and winter months is a necessity in strawberry growing, and in spring when the mulch is removed, a light amount, or as much as the plants will easily push through, should be left on.

The Superintendent of the Experimental Fruit Farm, at Excelsior, Minn., states that the prospects of Pear culture are not flattering. No variety of Blackberry will stand cultivation, not even the natives. The culture of the Raspberry and the Strawberry is found a paying success.

Reports from several parts of the State mention the Janesville Grape favorably for its hardiness and earliness; though many varieties of native Grapes are raised, the vines being laid down in the fall, and protected.

Mr. G. W. FULLER, of Litchfield, had raised a great many evergreens, and in his opinion the real order of value is Norway Spruce, Balsam Fir, Scotch Pine, White Pine and Arbor Vitæ. The Austrian Pine is said to do well in southern Minnesota and along the bluffs of the Mississippi River, but is not adapted to the prairies.

The hardy Catalpa, *C. speciosa*, is not hardy on the prairies of Minnesota. Cottonwood, White Willow, Box Elder and the White or Green Ash form ninety per cent. of the forest trees planted on tree claims.

BOTANISTS.

Botanists desiring to keep pace with the times will do well to read one or both of the special publications on this subject in this country, the *Botanical Gazette*, published at Crawfordsville, Ind., and the *Bulletin of the Torrey Botanical Club* at New York. They are filled with the results of the latest discoveries and studies. They are published at \$1 a year each.

VARIOUS INQUIRIES.

How to treat *Coleus* is what S. M., of Chatham, Ill., wishes to know, saying: "I have several different varieties raised from cuttings in August. All grew nicely through October, but since have not grown at all, and leaves and stalk are looking just as though they had been frosted." The trouble is want of heat; they need a temperature that shall not be lower than 55°, or at most 50° occasionally, at night, and a day temperature of 65° to 70°.

The propagation of *Weigela*, inquired about by R. M., is by cuttings and layers. It may be propagated by bending down the shoots and fastening them in a little trench three or four inches deep and covering with soil. The laying may be done in the spring, or in July after the new growth has been made. Cuttings of ripened wood like currant cuttings will strike root. In August when the soil is warm, if short cuttings four or five inches are made, leaving a pair of leaves at the upper extremity, and inserted in the soil as deep as the leaves, they will take root in two or three weeks.

The question is often asked if such and such a plant blossoms; and now F. E. S. makes this inquiry in regard to *Farfugium grande*. To make the answer as complete as possible we will say that all plants produce flowers with the exception of the Ferns, Horsetails, Mosses, Club-mosses, Pepperworts, Quillworts, Fungi, Seaweeds, and plants below these in structure.

The "best remedy for lice on hot-house Lettuce" for which L. C. L. inquires, is fumigating with tobacco. This operation should be performed as often as necessary to keep the pests under. Attention to this matter when the crop is first planted, and on the first appearance of the insects will prevent their doing any serious damage, while neglect may cause much loss. After smoking syringe the plants with clear water.

H. S., of Oakland, Ill., can keep over *Abutilons* that have blossomed in the garden in summer, by letting them stand until the weather becomes pretty cool in autumn, and the wood is ripe, and then removing the plants with a ball of earth to the cellar, and placing them in sand. In spring plant again in the garden.

"How do you treat the Perennial Pea for winter," inquires S. L., of Freehold, N. J. Let the vines lie on the ground, and cut them away in the spring. It requires no protection.

How long before *Cyclamen* and *Gloxinia* will blossom from seed, and how is *Jasminum grandiflorum* propagated, is asked by Mrs. A. M. Plants of *Cyclamen* from seed sown early in spring, if properly treated may bloom in the early part of the next year. Early sown *Gloxinia* seed may, with the best of care, produce plants that will bloom in autumn of the same year, but ordinarily not until the second year. *Jasminum grandiflorum* is propagated by cuttings, with hot-house, or as it is technically called, stove treatment.

Miss A. B., writing November 13th, says, "I planted some *Tuberoses* last April; they came up and grew nicely for a while, then the leaves died, and the plants have not bloomed yet. Please tell me something about them." Of course we cannot tell why the leaves died; there was something wrong in connection with the plants that we are not informed about. But after the leaves died it is not strange that no flowers were produced. The *Tuberose* is not difficult to manage when you know how. First procure sound bulbs and then plant them in good rich soil as soon in the spring as there is no danger of frost. While the bulbs are dormant they should be kept dry and warm. Do not place them in a cellar, but in a warm room where the temperature will range at 60° or over; a living room is none too warm for them. To hasten the blooming season the bulbs can be potted early and started in the hot-house or hot-bed, and afterwards transplanted outside.

HORTICULTURE IN MASS.

The Massachusetts Horticultural Society makes a valuable report for the year 1882, showing great interest in its membership. The meetings for discussion are attended by some of the most advanced horticulturists in this country, and their zeal appears never to flag. The discussions and reports are exceedingly valuable, and we shall take the liberty hereafter to place some of them before our readers.

FREAKS OF PLANTS.

Any one who loves plants always watches their growth as closely as a parent watches the growth and development of a child. Any peculiarity or eccentricity on the part of a plant will be noticed at once. That plants *can* be peculiar, and eccentric, all flower-growers know.

I had a *Geranium* of the *zonale* section a year or two ago that "sported" in a way to surprise me by throwing out a branch on which the leaves were a pure white. There was not a tinge of green anywhere about them. The branch itself was white. The rest of the plant confined itself to its normal colors and conditions. It made me think of some family which for years gives no indication of having in it any elements different from those which go to make up other families, but all at once a genius appears in it, and the family acquires distinction by its having given a peculiarity to the world in the concentration and creation of elements in it hitherto undreamed of. It was so with my scarlet *Geranium* which had, up to that time, been considered as nothing out of the ordinary. The branch grew very slowly. A green one that came out near it grew so rapidly that I feared it would take away from its pale brother more nourishment than it was entitled to, and it was ruthlessly removed. I hoped to encourage the "sport" to grow vigorously, intending to remove the rest of the plant when the white part had attained some size, but no amount of coaxing could make it vigorous. Its leaves were short-lived, generally dying off as soon as they had reached full growth. Thus there were never more than five or six leaves on the branch at any one time, and these in different stages of development, so that my hope to make a show-plant of it failed. It came to an untimely end.

A young—shall I do violence to my conscience and say lady?—No, I will use a more non-committal term. A young woman came to see my flowers, and was left alone in the conservatory for a few minutes. Shortly after she went away I missed the white branch on my *Geranium*. It was plain to see that it had been hurriedly broken off. I could not think she had stolen it, and

yet I knew, or was very sure, no one else could have taken it. That night, at a party, a member of my household saw her with it in her hair. I was very indignant, and I think I had reason to be.

Some years ago I noticed a peculiarity in a bud that a *Calla* sent up. Instead of being long and slender as they usually are, it was shaped more like an unopened *Tulip*. I watched its growth with great interest, and was surprised, when it opened, to find that it was a double flower, really two flowers, united on one stalk, opening in opposite directions, each one as large as an ordinary *Calla* blossom is. I have never had a double flower on the plant since, and have never heard of such another curiosity until lately, when a correspondent wrote to *Vick's MAGAZINE* about one that her plant had produced, and sent a photograph of it which the publishers had engraved.

I have now growing on a bracket in my window a pot of *Tradescantia*, which is a novelty to me. On a plant of the ordinary *Tradescantia*, I noticed, one day, a little branch that had white stripes in its leaves, and some leaves were almost wholly white. I removed the branch, and thought I would see what I could do towards propagating a new variety of this pretty vine. The cutting took root and grew rapidly. When it began to branch, I noticed that occasionally it would put out shoots that were like the old plant,—all green, and these I removed at once. I have now a very beautiful plant with branches hanging three feet below the pot in which it grows, and the purity of its white stripes in contrast with the bright green of the other part of the leaves makes it very attractive. I have given away a good many cuttings of it, and so far the plants grown from them have proved true to this new type.

Last year I found a blackberry bush in the pasture with most beautiful foliage. Each leaf was marbled and blotched with pale yellow, with occasional dashes of bright pink. I have marked it for removal to my garden in the spring. If it can be induced to grow there, and its variegation is permanent, it will be a great addition to my collection of native plants.—F. KING.



A LETTER.

It's no use waiting longer. For three months I have restrained myself from writing this letter. Feeling sure that VICK's young readers are not wooden boys and girls that can make neither sound nor sign, but are wide awake and ready—yes, eager, to do whatever they can to benefit themselves and others—feeling sure of this, I have something especial to say to you. Of course, I could write out what I am thinking of to the managers of the MAGAZINE, but they might not publish it, lest it should seem too much like begging favors; tho' that would not be the way to look at it at all, for it is they who are bestowing favors all the time. Besides, being so much of a stranger, I am half afraid of them when about to propose something that they have given me no liberty to do. This is one reason why I write directly to you, for the letter being yours, not theirs, they will feel almost obliged to print it. Another reason is, that I hope this speaking directly to you will somehow bring us nearer together; for, tho' I love every thing this MAGAZINE tells us about, I am a thousand times more interested in the young people of our land. I can never look at boys and girls without wondering what kind of men and women they will make; and I firmly believe that one of the surest safeguards of all that is good and lovely in our natures is an early appreciation of the wonders of the green, growing world around us.

As we begin to dip into its mysteries we become so interested in observing the different phases of plant-life, and its connection with the insect world, that we have little time and less desire for evil habits and coarse companionship. Try it and see. Had you suddenly dropped from the moon into a meadow some sum-

mer-night you would doubtless have spent the next day in examining the million-bladed grass, which now you tread upon without a thought. So I want to suggest that every young reader shall at once become interested in some green, growing thing, if it be only a small turnip from the cellar, cleanly washed, and set in a tumbler full of water; or a wet sponge filled with Oat or Grass seed and suspended by a cord, and then wait for results. Meantime you cannot well do without some good magazine teaching of plant-culture, and VICK's is a good one, and for some reasons I think it the best—but tastes differ. At any rate, keep your eye on something of the kind, and should some of you feel interest enough to get up a club for this MAGAZINE, and will send your names and addresses—with a few words, perhaps—on a postal card or in a letter to "AUNT MARJORIE," Box 528, Xenia, O., I will arrange them in a list with a sentence or two selected from each writer and send the list to the MAGAZINE each month. Those of you who have already gotten up clubs since Christmas may send your addresses also. In this way you will become acquainted with each other's names, and can exchange postal cards sometimes, if you choose; and perhaps begin a friendship in this way that may last a life-time. By writing fine, one may get a great deal on a postal card. Let's try this for a few months and see how we like it. In this way I shall be sure to find out who are the wide-awake ones, and the wooden ones I shall know nothing about, and so no harm will have been done. When seeking subscriptions take a bound volume with you, if you happen to have one, to show what a beautiful book the twelve numbers make. That, with a FLORAL GUIDE to show as a present to each sub-

scriber, and a sample copy of the MAGAZINE, will make an outfit that few can resist. Now, if it turn out that there should be no response to this letter I shall feel—well, I shall be very sorry, of course; but shall make brave endeavor to go on living a little while longer just the same as though I had received a shower of responses from “Our Young People.”—AUNT MARJORIE.

LITTLE ONES IN A NEW HOME.

“Oh, dear! I am so crowded down here, I can hardly breathe,” said a Pansy seed one fair spring morning.

lively we were when she took us out of our little traveling dresses in which we had come all the way from Rochester.”

“Oh, yes,” said the Pea, “I remember how you rolled around, and some of your sisters came dancing down into my bed, and here they are now, in green summer gowns, growing finely, but I do wish Miss Alice would come and pull up these weeds that threaten to smother us.”

“Weeds! dear me,” said the Pansy, “how I do dread to meet them. You know how particular our folks were at home. No coarse weeds nor vulgar company ever lived near us.”



ON THE JOURNEY.

“Well, why do you not come up,” answered a lively Sweet Pea. “There is plenty of room, and lots of fresh air, and the sunlight is beautiful.”

“But the ground is so hard I can’t get up there. You know Miss Alice was in such a hurry to get off to the picnic that she did not half pulverize the soil before she placed us here, and so we have to get through clods, and creep around sticks and stones the best way we can; yet she expects us to grow finely, and will think that master sent her poor seed if we do not equal the pictures she has seen of us. But you saw, Sweet Pea, how fresh and

“Oh, yes,” said Sweet Pea, “your mother was a beautiful lady, and so very aristocratic. Even her first cousins, the Violets, were not allowed to visit her, for fear of corrupting her children. Our master would be dreadfully mortified if we did not show our good training, so hurry up and show your colors.”

“Oh dear, how can I get out? The ground is hard on top, and a Balsam is crowding me on one side and a great, overbearing Sunflower is puffing himself out on the other.”

“Poor Pansy, I should think they would be ashamed to impose on such a

little body as you are, but try to creep out some way, or you will soon die down there in the dark. It is worth while to try hard, too, just to get a breath of this fresh air, and see the sun come up over the tree tops. If I could run, as Miss Alice can, I'd go to the top of the hill over there, and see where he comes from, instead of lying in bed late, as she does."

"Well, I'll try to get out soon," said Pansy; "are there many of our friends up there?"

along just in time to save. She made Miss Alice dig the bed up nicely, and set them in the middle of it and water them, and now they are growing as fast as ever they can to repay her kindness. Then she talked seriously to her for neglecting us so, and the little girl promised to do better, and dug around the Balsams and weeded the Petunias, and so they look well, but then she grew tired and left us. There is a lot of sturdy little Linums near by, but a great ugly worm is eating

all up. I wish Miss Alice would come and kill him. I am afraid he will eat me next. You ought to see the great black looking Ipomopsis over by the fence with the Hollyhocks. He says he grew there all last summer, while we were growing in the gardens at home, but the frost bit him, and the snow covered him, and this spring there were only his roots left, but he says he will grow and blossom this summer, for Miss Alice's grandmother, who planted his grandmother here, is coming, and he wants to look his very best. If the earth was only loosened so the rain could reach him it would help him very much, for he has to go so far to get a



THE NEW HOME.

"Only a few. Miss Alice didn't read the directions that careful Master Vick sent with us, so she put us all in the ground at once, and several delicate families died of exposure those cold nights. A dozen Verbenas fought their way out through clods, pebbles and sticks, but there are but two or three left, for Miss Alice left the gate open, and an old hen with ten hungry chicks came in and scratched the bed all up looking after their horrid worms; the poor Verbenas were torn to pieces, all except two or three, which Miss Alice's mother came

drink that it takes half his time. And there is my cousin, Perennial Pea, trying her best to get herself ready for work, but as fast as she sends up a shoot a sneaking little worm eats it off. I am so sorry for her, and I think Mr. Robin is, too, for he is singing her his 'cheer up' song. There he goes, right down by her. I wonder what he is after? Oh, Pansy, isn't he grand? As true as I live, he has carried that mean worm away, and now my cousin can grow in peace. I shall wave my handkerchief to keep him when he comes this way again, and show him

those thieves among the poor Linums. How are you getting along, poor Pansy?"

"Well, I think I can creep out by going away around this pebble, but I am so weak and tired."

"Do not give up, Pansy, and once you are out you will grow stronger every day. I long to see you so much. Your cousin Violet has two pretty blossoms, but you will be far handsomer. I hope you won't associate with Mrs. Four-O'Clock. Yesterday, she said I was very thin, and asked if my mother died of consumption. The coarse, ignorant thing! You remember how vigorous my mother was, and what a family she raised. Of course, it is natural for us to look refined and delicate. How I wish Miss Alice would remove these weeds. I have hard work to keep ahead of them, and they steal my rain, so I don't get half enough. I fear that I shall not be as tall as mother was, but I'd like to know how any well bred seed could grow here. Sunflowers and Beans would have been good enough for such a careless girl. As the frost killed the rest, there is only one Cypress Vine left, and that has no support, but lies sprawling on the ground. Such a delicate little creature as she is, it is too bad. I heard Miss Alice say that Master VICK sent her poor seeds; I was so angry at that! We all know how particular he was to have us all perfect. Ah! you're out at last."

"Yes, I am here at last, Sweet Pea, but how desolate and rough this place is. I wish we were back at Rochester. There we were not expected to do all the work ourselves, and we were not so lonely, for Master watched over us and we were tended like petted children. I am afraid that we shall all die from neglect here."

"I wish the grandmother would come," said Sweet Pea. "I hear that she is very kind and loves flowers, so I think she would take better care of us. And I will ask her to write Master VICK a letter to let him know how we were abused out here, and that it was not our fault that we did not do just as he expected us to, and grow strong and handsome to make people happy.—MRS. R. D. B., *Iowa*."

HOME! there's magic in that little word; it is a mystic circle which surrounds comforts and virtues never known beyond the hallowed limit.

AUNT MARJORIE'S LETTER.

It is pretty evident that "AUNT MARJORIE" has a good scheme for our "Young People" to engage in, for what she undertakes will be well carried out. We hope the young readers of the MAGAZINE will promptly respond to the invitation and learn what it is that is now proposed for their benefit. We are so anxious, ourselves, to know, that we are almost tempted to pretend we are young again, and commence a correspondence. But perhaps we shall find out soon from others. Possibly some may understand from AUNT MARJORIE'S letter that she wants the names of all those that join the clubs, and others may think she means only the names of the leaders of the clubs; but to be sure about it, it will be best to send her the name of every member and the places of residence, or post-office address. We would recommend each writer to say a few words about the village or place of residence, telling anything that may be of particular interest, and especially what the people are doing in gardens and in planting trees and shrubs, and making lawns, and cultivating flowers, and making their homes beautiful, and especially if they are trying to make the streets handsome, and are improving the school grounds; you can also describe any fine, natural scenery there may be, or any object of especial interest. But what might interest most of us would probably be something of your own experience in gardening.

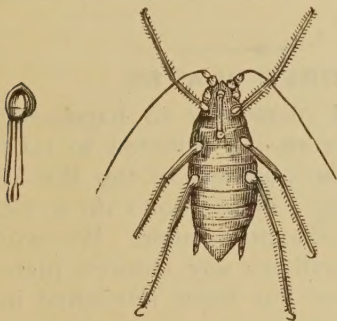
JIMMIE AND HIS MICROSCOPE.

"Mother, save some of those bugs for me, don't wash them all off." "What, these horrid, green aphides! they are ruining my Rose bush; what can you want of them, Jimmie?"

Jimmie Hardin had always declared he intended to be a lawyer. But when his mother subscribed for VICK'S MAGAZINE, three years ago, he became the most interested reader in the family. He read the MAGAZINE through, even the advertisements on the covers. One morning after having read over the back numbers of the MAGAZINE, he stood looking thoughtfully out of the window. Presently he turned around and said earnestly, "Mother, I think law is a detestable business; the idea that men must be compelled to treat each other fairly! And,

besides, law does not always put things to rights. I was up in the court room yesterday, and, can you believe it, the lawyers got to quarreling, and called one another hard names. Now, mother, you hear me, I will not be a lawyer, I will be a farmer and a naturalist. I will raise fruits and flowers; I will build me a house with big, long windows to let in plenty of light; and evenings I will invite the neighbors in, and we will read good books and have pleasant discussions; and we will never say a single mean word about one another. So we will be as one big family, and do you think we can ever quarrel then?" "I hope you may do all that, Jimmie," said Mrs. Hardin, "but remember it is only by carefulness in little things that great things can be accomplished."

Now we see why Jimmie was so interested in the bugs on the Rose bush. He got a jelly tumbler with a close fitting tin cover, brushed in some of the aphides, dropped in a small piece of cotton moist-



PLANT APHIS, MAGNIFIED.

ened with chloroform, and covered the tumbler. In this way the little fellows had a pleasant death, so far as we know, and there they were,

whole and uninjured, just right for examination with the microscope.

The result of Jimmie's investigation is given in the following letter, intrusted to me to forward:

DEAR MAGAZINE—Quite a while ago you invited the young folks to write, and I promised myself then, if ever I learned something worth writing about, I would do so. Not long since grandpa gave me a good compound microscope, and with it I have seen many things new and interesting to me. I want to tell now about the "horrid things" mother found by hundreds on her Tea Rose. Indeed, they are not horrid things at all. They have dark-brown eyes, and a beautiful green body, and the little beak that they bite the Rose leaves with is a marvel of neatness. I send you a drawing of the under side of one of these little bugs,

as I saw it with my instrument; also a much enlarged sketch of its beak. The aphid I took my drawing from was no larger than a pin-head, but under the microscope, as you see, it appeared to be quite a large bug, with two sharp blades at the extremity of its beak, and a dark-colored claw at the end of each leg. Watching one of these little fellows, without a magnifier, one might wonder why it stood so quiet and contented on the Rose leaf; but when with the microscope we discover that sharp beak, it is plain enough it is sucking the juice from the plant, enjoying itself, of course, just as the cattle do at pasture.

I have made my drawing as carefully as I could, and mother and sister both say it is a very good likeness.—Respectfully, JAMES HARDIN.

Jimmie always confides his plans to me, and I am sure he will pardon the little story about him that I have given.—W. C. S., *Lawrence, Kansas.*

RESULTS OF OBSERVATION.

The islands of the great oceans have been found to be either of volcanic origin or coral reefs, and great research has revealed the fact that when they were first visited by men they were destitute of the animals common to inhabited lands; but they are found to be fairly well stocked with plants, insects, land shells, birds, and often with reptiles, more particularly lizards. Now, it is an interesting question how the plants, birds and insects and other organisms reached the distant islands. Mr. WALLACE says that DARWIN determined to solve this problem, and to do this he "made observations, and some ingenious experiments. He endeavored to ascertain how long different kinds of seeds will resist the action of salt water without losing their vitality, and the result showed that a large number of seeds will float a month without injury, while some few survived an immersion of one hundred and thirty-seven days. Now, as ocean currents flow on the average thirty-three miles a day, seeds might easily be carried a thousand miles, and in very exceptional cases, three thousand miles, and still grow." Again, seeds are carried by floating trees that have been uprooted, and other drift timber; and also on the feet of water birds, to which, too, are often attached the eggs of mollusks.

MONTREAL HORTICULTURE.

The seventh report of the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec was issued last autumn, and contains much matter valuable to Canadian horticulturists. One of the principal papers published in it is entitled "The Northern Limits of the Principal Forest Trees of Canada, East of the Rocky Mountains." This is by Dr. ROBERT BELL, assistant director of the geological survey of Canada. It is accompanied by a beautiful map, showing at a glance the limits of thirty species of the most important timber trees of the country. As the information conveyed by this paper and the map has been obtained from officers of the Hudson Bay Company, from the notes of scientific travelers who have penetrated those northern regions, from botanists, and from members of the geological survey, it may be accepted as a reliable and valuable contribution to horticulture, arboriculture, and economic botany. A description of hardy Russian Apples, by A. WEBSTER; and a paper on Ornamental and Timber Trees by CHARLES GIBBS, with several other excellent contributions, make this report exceedingly interesting and valuable.

THE CENTURY MAGAZINE.

The January number of the *Century* contains a great amount of good matter, part of which is an article giving some account of DARWIN and his work, appropriately contributed by the celebrated naturalist ALFRED R. WALLACE. The paper is a very interesting and able one, and is illustrated with some elegant engravings of DARWIN'S home and garden, and greenhouse where many of his experiments were conducted. A fine portrait of the great man forms a frontispiece.

POPULAR SCIENCE MONTHLY.

We welcome each month the appearance on our table of this valuable periodical. It is filled with the choicest and freshest scientific literature from the ablest pens in this country and Europe. As our readers are aware, appropriate selections from it, from time to time, appear in our pages. It is well worth the \$5 asked for it. Published by D. APPLETON & Co., New York.

PREMIUMS.

As a little compensation to those who labor among their neighbors in getting up clubs we propose to give one of our FLORAL CHROMOS, on paper, to every one who sends us a club of *Five Subscribers*; and for *Twelve Subscribers* one of our CHROMOS ON CLOTH AND STRETCHER, both sent postage free. To any person sending us *Twenty Subscribers* we will forward by express, expressage paid by us, one of our FLORAL CHROMOS NICELY FRAMED IN WALNUT AND GILT. All to be at club rates—\$1 each. Please select the chromo you wish, or, if you wish us to select for you, please state this fact.

VICK'S FLORAL GUIDE FOR 1883.

Our FLORAL GUIDE for 1883 is now ready to send out. It is our design to send it to every subscriber as a present. It is a very handsome work, good enough for any one, and handsome enough for the parlor. If any one is accidentally omitted, please notify us by postal card.

COLORING PLATES.

Our colored plates are so handsome that many persons are tempted to take them out of the numbers of the MAGAZINE for framing. Please don't do it, for it spoils a handsome volume. We will send our subscribers any colored plate they desire, that has been published in the MAGAZINE, for FIVE CENTS each, postage paid by us.

BOUND VOLUMES.

Bound volumes of this MAGAZINE make splendid and useful presents. We can furnish volumes from the commencement—1878-79-80-81-82—for \$1.75 each, or the five for \$7.50. We will prepay the express charges or postage. Bound volumes for 1882 are now ready to send out.

CLOTH COVERS FOR MAGAZINE.

We will furnish elegant cloth covers for the MAGAZINE, to our subscribers, for 25 cents each, and prepay postage. Any bookbinder can put on these covers at a trifling expense.

Our readers are authorized to take subscriptions from neighbors and forward to us at any time.



PORTULACAS